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5th International Conference on

"Paradigm Shift in Management Strategies and Technological Innovation"

IC-PSMSTI 2022

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EDITORS

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E D I T O R I A L

It is a matter of great pride and pleasure for us to host the 5th International Conference on **"Paradigm Shift in Management Strategies and Technological Innovation (IC-PSMSTI-2022)"** on **Saturday, December 10, 2022**. Innovation is the multi-stage procedure that supports organizations to transform ideas into new or improved products, services or processes, in order to advance, compete and differentiate themselves successfully in their marketplace. But there are several challenges for innovation. It is considered that the new young mind of today can shape the world of tomorrow by driving innovative solutions to the challenges that our society faces frequently.

It is imperative to transform young learners into responsible tech-savvy citizens with sustainable, eco–friendly lifestyles and global challenges at the workplace. Higher education institutions and colleges remain the center for bringing such changes by large in the society. Academicians, researchers, industrialists, entrepreneurs, students need to learn strategies in managerial operation and technological innovations that will enhance productivity in both societal and economic growth. This Conference aims to facilitate open discussion in innovative trends, futuristic strategies and challenges in multi discipline of management and information technology.

Our Keynote Speaker Dr H.C. Mario Schmidt, Industry Expert; A visionary speaker & Managing Director of Lingel Windows and Doors Technologies, Germany. He is also Company Director of Fensterbau Lingel Germany GMBH. With his immense knowledge in Mechanical Science, he has been able to add more value to the company's innovation plan and has helped launch various new products. Mr. Mario Schmidt is the President of uPVC Windows and Doors Manufacturers Association (UWDMA).

Our Guest Speaker Dr. Mario Fishry, Director of IT Services at the American School of Bombay involved in leading the entire IT infrastructure. He has almost 20 years of experience in the areas of strategic planning, leadership and innovation, and change management in the field of information technology.

One of our speakers Mr. Prakash Singh is a Professor in the Finance & Accounting area at the IIM, Lucknow. He is on the Board of various government committees (both central and state) and also serves as Independent Director on the Board of some Non-Banking Finance Companies.

Another Speaker Prof. Shankar Prawesh, Assistant Professor, IIT, Kanpur, works in the area of machine learning, digital marketing, and algorithm design. He earned his integrated Master's Degree (5 years) in Mathematics and Scientific Computing from IIT Kanpur and his Ph.D. in Management Information Systems from the University of South Florida.

We feel privileged in thanking all those who have helped us in making this Conference successful. From every little gesture of help to grand support, each action is acknowledged. Special thanks to our Respected Chairman Dr. Mahendra Mohan Gupta, Vice-Chairperson, Respected Mrs. Ritu Gupta, Dr. J.N. Gupta, CEO, Jagran Education Foundation and peer members for their enormous support, motivation and guidance. We wish you all to learn, gather and make memories worth remembering.

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CONTENTS

(1) RURAL ENTREPRENEURSHIP: SOME ISSUES (A CASE STUDY OF TWO VILLAGES IN KARNATAKA).. 1 to 3

- Dr. Sangapp V. Mamanshetty

(2) HUMANE RESOURCE TECHNOLOGY TRENDS IN 2022: A BIRD'S EYE VIEW.. 4 to 6

- Dr. Santosh M. Singh

(3) EMOTIONAL WELL-BEING OF TEACHERS AND IMPROVED IN-ROLE PERFORMANCE FOR SUSTAINABILITY OF HIGHER EDUCATION SYSTEM.. 7 to 9

- Divya Singh and Dr. Anshu Yadav

(4) THE RISE OF DESIGN THINKING: A PARADIGM SHIFT IN BUSINESS INNOVATION.. 10 to 14

- Stuti Jain

(5) ADVANCE SECURITY ON SIM LOCK BY USING FACE RECOGNITION.. 15 to 17

- Renu Pal, Komal Kumari Jha and Anand Kumar Dixit

(6) MANAGING STRESS AT WORKPLACE.. 18 to 22

- Priya Chopra Arora

(7) FUTURE CONNECTED WIRELESS SYSTEM-CORE ARCHITECTURE & TECHNOLOGY FOR 5G WIRELESS SYSTEM / MOBILE COMMUNICATION.. 23 to 27

- Vishnu Kumar Shukla

(8) INNOVATION & ENTREPRENEURSHIP.. 28 to 30

- Dr. Meenakshi Jaiswal

(9) MODEL ASSOCIATION BETWEEN WORKPLACE SPIRITUALITY AND STRESS.. 31 to 34

- Dr. Harvinder Kaur

(10) INTRODUCTION OF NEW AND INNOVATIVE HUMAN RESOURCES MANAGEMENT PRACTICES DUE TO COVID-19 PANDEMIC.. 35 to 38

- Shweta Chauhan and Sneha Gupta

(11) PSYCHOLOGICAL EFFECTS OF GREEN - WASHING.. 39 to 42

- Rahul Verma and Dr. Divya Chowdhry

(12) ACCREDITATION FRAMEWORK AS PART OF NEW EDUCATION POLICY PARADIGM.. 43 to 46

- Dr. Souvik Banerjee and Dr. Debaditya Mohanti

(13) THE ART OF CORPORATE COMMUNICATION-EMPOWERING WORK EFFICIENCY IN AN ORGANISATION.. 47 to 49

- Pawan Omer

(14) THE BLUE BRAIN: AN EDGE-EXTENDING TECHNOLOGY.. 50 to 53

- Vaishnavi Jaiswal, Anand Kumar Dixit and Dr. Anil Kumar Singh

(15) IDENTIFYING AMBIGUITY IN WEB QUERIES BY AUTOMATED WORD SENSE DISAMBIGUATION

(WSD) ALGORITHM........ 54 to 58

- Ashutosh Singh, Rishabh Vaish, Subhash Chandra Maurya and Anand Dwivedi

(16) TOWARDS SUSTAINABLE SUPPLY CHAIN – THE LESSON LEARNED FROM DISRUPTIONS IN SUPPLY CHAIN MANAGEMENT........ 59 to 62

- Dr. Hariom Divakar and CFA Anu Bagri

(17) A STUDY CUSTOMER SATISFACTION ON ATM SERVICES WITH REFERENCE TO PUBLIC AND PRIVATE SECTOR BANKS........ 63 to 67

- Aishika Saini

(18) IDENTIFYING THE SUCCESS FACTORS OF INSTAGRAM MARKETING TO REACH GENERATION Z........ 68 to 72

- Dr. Radhika Thapar, Ankur Tayal and Bhawna Dewan

(19) FACTORS AFFECTING EMPLOYEE PERFORMANCE IN AI ECOSYSTEM........ 73 to 78

- Dr. Deepti, Sakshi, Dr. Sushma Sharma and Dr. Monika

(20) NOURISHING THE ROOTS OF AGRIPRENEURSHIP IN INDIA–A WAY FORWARD........ 79 to 82

- Surya Prakash Agrawal, Dr. Rakhi Gupta and Dr. Divya Chowdhry

(21) A STUDY ON MARKET SEGMENTATION........ 83 to 85

- Dr. Akshat Gupta

(22) RESOLUTION OF DEGENERACY IN TRANSPORTATION PROBLEMS........ 86 to 88

- Adarsh Srivastava, Ashish Mishra, Sejal Kesharwani and Kartikey Gupta

(23) HOW ARTIFICIAL INTELLIGENCE WILL IMPACT GLOBAL INDUSTRIES IN 2022?........ 89 to 91

- Ashish Kumar Verma

(24) NATIONAL PENSION SYSTEM VIS-À-VIS CONTRIBUTORY PROVIDENT FUND: A STATISTICAL STUDY ON TWO SOCIAL SECURITIES IN INDIAN SCENARIO........ 92 to 98

- Dinesh Kumar Lalwani, Dr. Susheel Kumar Indurkar and Dr. Sanskrity Joseph

(25) GREEN HUMAN RESOURCE MANAGEMENT [HRM](GHRM)........ 99 to 102

- S. Thiyagarajan

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RURAL ENTREPRENEURSHIP: SOME ISSUES (A Case Study of Two Villages in Karnataka)

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ABSTRACT

Agriculture is a science and practice of cultivating crops and rearing livestock from the natural resources of the earth supplemented by other forms of artificial nutrients, medicines, and materials. Agriculture is the most important sector of the Indian economy in terms of contribution to the Gross Domestic Product (GDP) and generation of employment. Speedy development of agriculture, therefore, is vital to the progress of India. Agriculture occupies a key position in the Indian economy because of its contribution to overall economic growth through supplies of food, raw materials, and direct exports. It is source of livelihood for a majority of the population and provides a large market for non-agricultural goods and services. The reforms policy and measures have been gradually directing the economy from the arena of planned, mixed, and socialistic pattern during the last five decades to a free market economy.

Keywords: Agriculture, Rural, Entrepreneurship, Economy, Emplyoment.

1. INTRODUCTION

Globalization aims at opening the economy including agriculture to foreign capital, services and goods, the result of which is the direct import of vegetables, edible oils, apples, pulses and palm oil from Australia, USA, Malaysia and Thailand. Formers are gearing up to face the onslaught of imports and global competition in agriculture. It is heartening to note that there has been a marked change in the Indian agriculture thanks to the initiatives taken by the government in respect of introduction of yielding varieties, better farm management practices and provision of irrigation facilities. Hybrid varieties have replaced indigenous varieties. Genetically modified food and commercial crops are being increasingly adopted. Unlike in the yester years Indian farmers are now better informed, positively disposed and more receptive to trying new methods. In the process, the bullock-cart and the traditional plough are gradually replaced by tractors and modern equipments. A welcome change indeed! All these measures led to the transformation of Indian agriculture from mere subsistence farming to creating agriculture surplus over the years. From importing food grains to exporting!

Survival and growth is the driving force towards farmers adapting to the latest technology like cultivation of improved varieties use of farm inputs, and better farm management practices etc. towards commercial farming.

2. NEED FOR THE STUDY

Agriculture in the Indian economy enjoys a pride of place. Agriculture and allied activities together are estimated to account for 22% of the GDP. Further, 58% of the population is directly dependent on agriculture for their livelihood. In the export front too, performance of Indian agriculture is noteworthy, contributing 12.8% to the country's export earnings. Today, India is the second largest producer of food next to China.

Based on a through review of the existing literature on entrepreneurship in agriculture and allied activities in rural India it was found that there are vary few studies which correlate the changes in cropping pattern and agricultural income which normally results in heightened entrepreneurial activity in terms of diversification in to other related activities which simultaneously results in changes in consumption pattern leading to better life styles.

Though the spread of innovations in agriculture is rather new compared to the

3. OBJECTIVES OF THE STUDY

- To assess the relationship between cropping pattern and income of the farmers.
- To examine the participation of farmers in the non-farm and allied activities in rural areas.
- To ascertain the changes, if any, in the lifestyles and consumption pattern.
- To enquire into the entrepreneurial trends in both agriculture and allied activities and to suggest an operational model to promote rural entrepreneurship.

4. RESEARCH METHODOLOGY

The study was exploratory research carries out in a rural setting in the state of Karnataka. The researcher spent considerable time in the sample villages to gain first hand knowledge of the lifestyles and various agricultural practices of the respondents in the villages. Both participatory and observation methods were adopted to gain insights into the behavioral aspects of the farmers.

5. SAMPLE SELECTION AND SOURCES OF DATA

Keeping in view the objectives of the study, two villages were selected at random from Gulbarga district of Karnataka in India. The two villages chosen were Kamlapur and Kalagi the former a big village with considerable number of large farmers and relatively better facilities while the latter was a small village with more marginal and small formers. The two villages belong to two different clusters in the district. Kamlapur was drawn from a developed region of the district while Kalagi was from an underdeveloped region of the same district. These two villages represent the developed and underdeveloped parts of the district.

Again, from each of these two villages, 150 farmers were chosen at random. Thus, the sample consists of 300 farmers. While selecting the sample respondents, adequate care was taken to ensure they represent the population. Broadly, the two villages represent two distinct homogeneous characteristics. Kamplapur village comprising of large farmers and Kalagi village consisting of small and marginal farmers.

6. SOURCES OF DATA

The data for the study were collected from primary and secondary sources.

Primary Data:

A detailed schedule was prepared to obtain information on several issues form the farmers. The researcher made several visits to the two villages to acquaint himself with the respondents and opinions leaders at the villages. After thus establishing the credentials, a pilot study was conducted to ascertain the validity of the schedule. Appropriate changes were made to the schedule with the inputs gained in the pilot study. The researcher with the help of the modified schedule interviewed the sample respondents and opinion leaders. The study also necessitated the researcher to stay in he two villages one month in each village to observe the behavioral aspects of the respondents.

Secondary Data:

In addition to the primary sources mentioned above, the researcher also relied upon a few secondary sources of information to validate and substantiate some of the findings. As such, published reports of the government, books on agriculture and rural development were extensively consulted.

7. MAJOR FINDINGS AND CONCLUSION

Socio-Economic Indices:

Out of the total 300 respondents of both villages' half (51.67%) of the population is above 45 years of age followed by 31.33% who fell between 35-45 years of age and 17.00% below 35 years of age.

Total numbers of family members in both the villages are in direct contrast to each other. In Kalagi 28% of farmers have more than eight family members who are anyway helpful in agricultural work; whereas only 5.33% of farmers have more than 8 family members in Kamplapur village.

There are almost no illiterates (1.33%) in Kamlapur whereas 46.67% percent were illiterates in Kalagi village. In Kamlapur all the castes are present namely forward, backward, scheduled caste and scheduled tribes and are present according to the following percentages 71.33, 22.00, 5.33 and 1.33 respectively. Whereas in Kalagi out of total population scheduled caste constitute 28.67% along with scheduled tribes who form 71.33% of the population.

Dwelling units in both the villages are also a study in contrast with almost all the population (98%) of Kamlapur owing pucca houses as against 18.67% of the population owning pucca houses in Kalagi. Women folk in both the villages are involved in agriculture are made by the men folk in both the villages.

Water being an important resource almost all farmers (95.34%) in Kamlapur own bore wells for irrigation whereas in Kalagi 43.33% of farmers own bore well and the rest (56.67) irrigate their fields by paying rent to the bore well owner of their nearby field.

Further in Kalagi due to non-availability work during slack season they supplement their income by working as agriculture labour and in cottage industries, whereas in Kamlapur they have work throughout the year because of multiple cropping by almost the entire population compared to 44% of the population growing multiples crops (three crops and above) in Kalagi.

Crop Rotation and Income Generation:

Crops grown vary between two villages. In Kamlapur 64% of the farmers grow more than five crops which include food like rice, commercial crops like turmeric grown as an intercrop with maize for fresh cobs, seed crops like maize, jowar, toor and sorghum grown for seed companies under specific contract with them. They also grow vegetables like tomato, Brinjal, cabbage, cauliflower etc.

Kamlapur village has its own market yard constructed and operated by village peasants' association (Ryty Sangam). Brokers come daily to the villages to pick up the produce. Brokers are extended a credit of 15 days and default is unheard of as the villages association will debar the broker from coming to the village without setting earlier due after the official credit period.

In Kalagi no farmer grows more than four crops. Few farmers contract with seed companies. In Kamlapur all the formers have gone for changes cropping pattern whereas only 24.67% of farmers in Kalagi gone for crop rotation.

Private seed companies (89.33%) were the dominant influence of crop change in Kamlapur whereas only 8% of formers in Kalagi went up for crop change due to advice from seed companies and 16.67% because of advice from extension officer of Karnataka government. Cropping

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pattern intensively varies between 250-300 percent in Kamlapur and it was around 150-200 % in Kalagi.

Non-farm and Allied Activities:
In Kamlapur women association runs their grocery shop on nor-profit basis with pooled capital from the population. In Kamlapur 17.33% of farmers and in Kalagi only 6% of farmers subscribe to newspapers around 42% of Kamlapur farmer own Kisan credit cards and tractors, sprayers, two wheelers and TV are owned by the entire population. Around 62.69% own refrigerators, and 3.33% owns washing machines few farmers own cars, trucks and buses. In Kalagi only 22% of farmers have television and around 33.33% of the farmers have sprayer and 4.67 have motor cycles.

Life Style:
All the homes in Kamlapur have got electricity compared to 85.33 in Kalagi. Around 62.67% of household in Kamlapur have got gas connection compared to 10% in Kalagi. Most of the houses have cable connection in Kamlapur compared to few houses in Kalagi. Telephones and mobile phones with all the households in Kamlapur as compared to few houses in Kalagi

Entrepreneurship:
Success comes out of backward and forward linkages coupled with entrepreneurial spirit and it is a function of several factors. Entrepreneurial activity is influenced by the fallowing favorable factors, utilizable natural resources (land and Water), support system from the government, village community help, finance, marketability of the produce and technology.

Wherever there are community efforts in development and gathering of information and collective focus of their energy towards building up the agriculture there is always diffusion of knowledge from trend-setting farmers to followers. With the regular availability of farm produce vendors are coming to the village and picking up the produce, the major constraints of selling the produce and wastage due to non-availability of cold storage conditions is avoided.

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HUMANE RESOURCE TECHNOLOGY TRENDS IN 2022: A BIRD'S EYE VIEW

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ABSTRACT

Today, entrepreneurs with business acumen have recognized the power of information technology (IT) tools to achieve business goals. It not only helps achieve business goals, but also optimizes work processes. Human resource management (HRM) includes activities such as recruiting, training, developing and rewarding people in an organization. HRM must strive to achieve competitiveness in the field of HR by providing permanent education and training programs for the personal and professional development of the organization's employees. It is conventionally proven that information and communication technologies (ICT), such as the Internet, mobile communication, new media and the like in HR can significantly contribute to the fulfillment of an organization's personnel policy. Technological advancements can have a huge impact on an organization's HR department. It enables the company to improve its internal processes, core competencies, relevant markets and organizational structure as a whole. Human resources must be focused primarily on the strategic goals of the organization. These strategies must be guided to incorporate the strategic IT plan for the organization. These are activities related to any development in the entity's technological systems, such as product design (research and development) and IT systems. Technology development is an important activity for the innovation process within the enterprise and can include acquired knowledge. In context, all activities may have some technical content and result in greater technological progress. Information technology can have a greater impact on organizations that exist in a dynamic environment. This will lead to greater efficiency and effectiveness of human resources. This study focused on new HR technology trends in 2022.

Keywords: Human resource, Technology, Organsational, Development, New Trends.

1. INTRODUCTION

Amid the ongoing pandemic, HR technology continues to serve as a key asset for HR leaders. The ability to disseminate information to a remote workforce is easier when the right digital communication channels are in place. Small businesses may also realize that now is the time to take advantage of HR technology trends and upgrade their systems to help stay compliant with applicable employee laws and regulations, efficiently track time, process payroll and maintain employee information. For larger corporate structures, advances in HR technology are helping HR leaders become even more engaged with their company's overall strategic goals. According to Paychex Pulse of HR Survey 2021, 98% of HR leaders said the COVID-19 pandemic has changed their role. With this transformation comes an even more critical focus on technology—for the first time ever, HR technology has become a top focus for HR professionals (with 81% of HR leaders citing it as their top priority). More than 85% of professionals surveyed said that technology "enables them to be more strategic in their roles" and "improves the employee experience." At a time when retention issues are at an all-time high, this strategy-based approach can provide a critical competitive advantage to effective workforce management.

2. WHAT IS HR TECHNOLOGY?

This broad term can encompass support for a wide range of complex business functions payroll, time and attendance, benefits, talent acquisition, and more served by software and other forms of technology in human resources. From a new generation of employee self-service to continued learning tools, the use of technology in HR management allows professionals to take on a more strategic role within their organization.

3. WHAT ARE THE LATEST HR TECHNOLOGY TRENDS FOR 2022?

A variety of HR technologies are helping HR professionals manage their biggest challenges today, with other technologies likely to appear in the future. Here's a brief look into the future trends in HR technology:

- Widespread availability of self-service tools
- Emphasis on employee wellness, safety, and support
- Expansion of HR capabilities
- Embracing hybrid work environments
- Increased focus on strategic initiatives

4. WIDESPREAD AVAILABILITY OF EMPLOYEE SELF-SERVICE TOOLS

Increasingly, employees want to access and manage their personal information. With an employee self-service (ESS) system, employees can perform a range of HR-related tasks without filing paperwork with HR.

5. EMBRACING HYBRID WORK ENVIRONMENTS

For many companies, the pandemic has caused an immediate shift to remote work. This highlighted gaps in technology services where additional investment was often required. For example, job interviews and much of the recruitment process may have previously taken place in the office. When that was not possible due to blockades or travel restrictions, many companies adopted technology that allowed them to complete the interview process virtually.

6. INCREASED FOCUS ON STRATEGIC INITIATIVES

In the future, HR technology can help guide further shifts in company strategy by identifying critical skills that may be needed. For example, manufacturing companies may have shifted away from their traditional products to help meet the demand for personal protective equipment for healthcare workers.

7. CHALLENGES OF HR TECHNOLOGY

In 2022 and beyond, HR professionals may continue to face challenges from both organizational leaders and the employees they serve. When elevating new investments, consider technology that supports both remote workers and those onsite. Using technology to facilitate faster, more informed decision-making throughout the company may be even more urgently needed in the next few years.

8. HIRING AND RETAINING WORKERS

Due to changes in the hiring environment that are a direct result of the pandemic, HR professionals may struggle to hire and retain full staff. Dubbed "The Great Resignation," many workers have left their jobs or looked for new jobs in the past few years in search of better pay and benefits, more flexibility, and overall greater job satisfaction. These shifts have left employers scrambling to fill their labor pools and fighting for high-quality candidates. Unfortunately, this shift in the job market only added fuel to the fire as many candidates demanded increased compensation packages, large hiring bonuses and expanded benefits offerings. Applicants have the upper hand in today's job market, allowing them to be extremely selective when accepting an offer.

To remain competitive in this environment, employers may need to rethink their benefits programs, and HR technology is one way to gain an edge. For example, technology can help employers and HR teams quickly compare the costs and offerings of benefit programs and identify the benefits that resonate most with current job seekers.

9. HELPING EMPLOYERS REACH THE RIGHT CANDIDATES

Today's competitive hiring landscape makes it more critical for employers to identify the right candidates quickly. A key resource for successful recruiting and hiring is a customized applicant tracking system. This technology is often designed to ensure that qualified candidates don't slip through the cracks. It can streamline the process by making it easier for job candidates to submit their materials online, which in turn can enable hiring managers and HR professionals to better access the information they need from a single interface.

10. A DATA-DRIVEN APPROACH TO ADMINISTERING BENEFITS

Even in the best of times, benefits administration can be an area where the abundance of data can feel overwhelming if it's improperly structured. On the other hand, effective benefits management technology can efficiently provide and monitor all types of benefits packages, better positioning a company and its HR team for success. Technology can also help to identify which benefits are currently being used and viewed as desirable by the workforce, and which benefits are underutilized. A data-driven approach helps companies gather the information needed for effective compliance reporting and benefits administration.

11. PERFORMANCE MANAGEMENT AND CONTINUED LEARNING

New performance management techniques are transforming the way businesses conduct employee reviews and goal-setting. These changes reflect the ongoing need to prioritize employee development, ensuring that skills are up-to-date and that employees continuously learn and better understand the culture in which they operate. As the workplace changes, HR technology provides a more efficient means of adjusting performance management metrics.

12. GET HELP NAVIGATING CHALLENGES SO YOU CAN FOCUS ON RUNNING YOUR BUSINESS

- Assesses your HR needs, customizes an action plan, and helps with implementation
- Helps you simplify employee relations and management processes
- Helps to identify employment laws and regulations that may impact your business
- Helps you establish employee training and development programs to improve performance and loyalty.

13. SUGGESTIONS FOR AT THE TIME OF TECHNOLOGICAL CHANGE

Technology changes the way HR departments contact employees, store files and analyze employee performance. Technology makes it easier to gather and break down data on employees to get an overall picture.

Recruiting Transformed by the Internet

Before the internet and email, connecting with job seekers meant phone, face time or a letter. In the 21st century, it's routine for companies to post openings online, and require job seekers to apply through an online applicant tracking system. That frees up a great deal of time that HR would have spent dealing with paper resumes or personal calls.

However, HR practices don't always take into account how well the system works for the candidates. Online forms have a standardized format that often makes it hard to tell a star performer from a slacker. A badly designed system with confusing instructions and slow response times can actually turn job seekers off to applying with a firm.

Ease of Communication

With email, text and messaging apps it's easier than ever for HR staff to stay in touch with the rest of the company. If a manager wants to share a new schedule with a project team, one email with an attachment or a conversation on Slack can share the word with a dozen people at once. There's a risk of relying too much on tech as a time-saver though. Information in a two-page email may be better off delivered to the group face to face. That way everyone can ask questions and hear the answers.

Data Analysis of Employee Performance

Analyzing employee performance used to depend on personal assessments and obvious standards: Did the employee finish the task on time? Does their boss trust them? Technology makes it easier to gather and break down data on employees to get an overall picture. Which tasks do they perform best? Do they meet all the goals from last year's performance appraisal? If they fell short, was it by 12 percent, 50 percent or 75 percent? Software programs can even take over much of the work in evaluating employees.

Too Much Data

As HR makes more use of data collection and analysis, employees may feel that their privacy is diminishing. If, say, a company has security cameras watching employees every second, it may be easier to find the facts behind allegations of harassment or that someone has been drinking on the job. However, constant monitoring can also alienate employees. Good HR practices include not only knowing how much data can be collected, but also how much should be collected. Another risk is that the HR department may end up with more data than it can manage. After a certain point, wading through data and selecting relevant material becomes an impossible task. It's also possible for HR to misread the data or make assumptions that a face-to-face interview could clarify.

Security Practices

Securing employee records used to mean locking a file cabinet. In the 21st century, best HR practices have to include security for the digital data. Some security is more an IT matter, such as a good firewall. HR needs to have good policies in place, though, governing who can access confidential data, both hard copy and in electronic form.

14. CONCLUSION

Technology has brought about a beneficial transformation that is required in the HR department. Technology that centralizes administrative tasks helps shift HR priorities to more important tasks. A list of association management companies can help you choose the best management software. However, you should keep in mind that technological breakthroughs cannot compete with humans. Some roles and tasks are better handled by humans. While this is true, technology is still important to businesses. By following specific technological trends, build the company's reputation on the market. Technology is changing the way HR departments contact employees, store files and analyze employee performance. When used correctly, technology streamlines HR processes. If misused, it can interfere with the company's human resources management. Good HR practices maximize benefits and minimize problems.

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EMOTIONAL WELL-BEING OF TEACHERS AND IMPROVED IN-ROLE PERFORMANCE FOR SUSTAINABILITY OF HIGHER EDUCATION SYSTEM

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ABSTRACT

Higher Education Environment in India is set to observe dominant changes after the implementation of National Education Policy 2020, as Government of India is constantly striving to implement new initiatives for creating quality culture that can improve organisational learning capability. The changing governance systems across academic institutions will force them to deal effectively with issues related to retention of qualified teachers and their well- being will be given due attention. Emotional well-being is a strong indicator of accomplishments that one can achieve in both personal and professional life. Teachers in Higher education are now exposed to a wider set of responsibilities in the complex technology- enabled environment and to survive and thrive in the new scenario they require such qualities as self-regulation, motivation and people skills.

In this context, the objective of this paper is to review journal articles, published and unpublished reports, periodicals, books, thesis, and other relevant publications obtained from various databases to understand the outcomes of previous studies that have tried to explore the role of Emotional Intelligence for dealing with job- related stress and improving their in- role performance. The study will include both qualitative and quantitative researches from 2000 to 2022 that focus on academic setting, higher education sector, emotional intelligence antecedents and outcomes and in- role performance related concepts. Thereafter, the information generated will be utilised to study the gap and develop and present a conceptual model and propositions to examine the impact of emotional intelligence on in- role performance of teachers in higher education.

Keywords: Higher Education, Emotional Intelligence, in-role Performance, Virtual Academic Environment, Positive Emotional Contagion.

1. INTRODUCTION

India has been imparting higher education from ancient times and had an embellished university system. Currently, India owns a well-developed higher education system that facilitates education and training and development of human intellectual process and creativity by offering program courses like mathematical and social sciences, arts and humanities, medicine, agriculture, law, commerce, and management, etc.

Teachers act as wave makers in the teaching-learning process and play a crucial role in enhancing the knowledge of students. In higher education, the common aim of teachers is to develop their student's cognition skills through theoretical concepts along with practical knowledge. An effective teacher has authentic knowledge of the subject and he can also bring an understanding of the subject's content to students. Many pieces of research have concluded about the personality of teachers that an effective teacher's personality will be self-assured, sympathetic, approachable, dedicated, and motivated. While performing different roles and responsibilities like academicians, research supervisors, and administrative work creates lots of work pressure which affects their personal and professional life. Dealing with work pressure teachers face their positive and negative feeling and emotions. Sometimes they are able to handle their negative emotions but sometimes it will create stress and depression in their work life and personal life. It is in this context that this study intends to understand the Emotional Well- being of Teachers and improved in-role performance for the sustainability of the Higher Education System.

2. THE OBJECTIVES OF THE STUDY

The study, in general, intends to understand the Emotional Well- being of Teachers and its role in improving their in-role performance for the sustainability of the Higher Education System. The study relies on journal articles, published and unpublished reports, periodicals, books, thesis, and other relevant publications obtained from various databases. The studies included both qualitative and quantitative researches.

Specifically, the objectives are:

- To review the Emotional well-being and emotional intelligence of Teachers in Higher Education

- To study in-role challenges encountered by Teachers in Higher Education
- To suggest measures to improve performance by reviewing most recent literature and evolving a model for future study with emotional intelligence as an antecedent to improved in- role performance.

3. REVIEW OF LITERATURE

Emotional Well-being

Emotional well-being is a critical part of aggregate wellness. It has an impact on your point of view on life, relationships, and on your health. As we pay more attention to emotional wellbeing, we are able to understand the following things: i) Acquire and offer feedback with a healthy mindset. ii) Having discussions and demanding conversations with everyone. iii) Enact a stronger relationship. Emotional well-being is important because it can influence how people function and accomplish their routine tasks. Emotional well-being can be developed by the emotional intelligence of a person.

Emotional Intelligence

Salovey & Mayer (1990) studied the framework for emotional intelligence. They define emotional intelligence as a skill set conjecture to contribute to the factual estimation and expression of one's and other's emotions. The study also explains the conceptualization and scope of emotional intelligence as i) appraisal and expression of emotions: this includes self and others' emotions that can be assessed and expressed in verbal and non-verbal perception. ii) Regulation of emotions in one's self and in others. iii) utilization of emotions for motivation, creative thinking, mood-redirecting attention, and flexible planning. Conte (2005) explains emotional intelligence alters broadly in content and in their method of assessment. The four major emotional intelligence measures the psychometric properties and measurements which are multifactor emotional intelligence, Caruso emotional intelligence, emotional quotient intelligence, and emotional competence inventory. Mayer et al (2008) studied emotional intelligence as the capability to accomplish exact reasoning about emotions and the potential to use emotions and emotional knowledge to heighten thoughts. Lyons & Schneider (2005) This study examined the relationship between ability-based emotional intelligence with performance under stress. Emotional intelligence which is at a high level promotes challenge assessment and better performance and at a lower level, emotional intelligence cultivates threat appraisals and worse performance. Some of the dimensions of emotional intelligence were related to the completion of tasks after controlling for demonstrating cumulative validity, and cognitive ability. Côté (2014) defines emotional intelligence as measuring two approaches that are self-report approach and the performance-based approach. MacCann et al (2020) studied the degree to which emotional intelligence is related to academic performance. Zulkifli et al (2022) measure the level of emotional intelligence among teachers in the Pahang state of Malaysia.

In-role performance

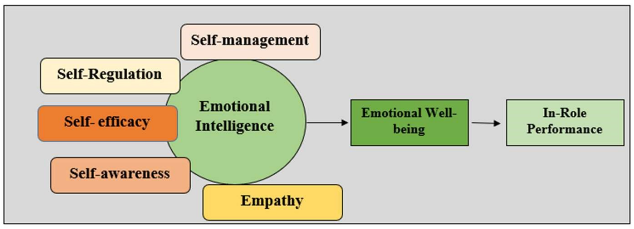
In-role performance may be defined as how a person expresses his role. For a teacher, in-role performance incorporates preparing classes, performing various administrative functions, consultatory to students after their classes, writing papers, and conducting research. Ertürk, 2018 the aim of in-role performance evaluation is to establish the degree of success of a person for a task and job. Consequently, teachers cannot furnish this directly because of the changing student profile every year. Özgenel & Mert (2019) studied the idea of teacher performance at the school level straight to commit to school effectiveness by executing their educational goals. Asrar-ul-Haq et al (2017) studied the impact of emotional intelligence on teachers' role performance in the education sector of Pakistan. It was found that there teachers' role performance is a relative impact on emotional intelligence in the education sector. Gómez & Valdés (2019) studied the vital review of different ways in which the performance of teachers at the university was evaluated. May et al (2020) studied the improvements that are required to enhance the high- quality education through quality teacher role performance. Karim et al (2021) teachers play a very crucial role in determining success in education. Supervision of teachers may lead to the effective in-role performance of teachers in an institution.

4. RELATIONSHIP BETWEEN EMOTIONAL WELL-BEING, EMOTIONAL INTELLIGENCE, AND INROLE PERFORMANCE

This study is intended to review the emotional well-being, emotional intelligence, and in-role performance of teachers for the sustainability of the higher education system. MacCann et al (2020) define the three mechanisms which link emotional intelligence and academic performance as i) building social relationships, ii) academic indulgence overlapping with emotional intelligence, and iii) regulation of academic emotions. Zulkifli et al (2022) found that with higher emotional intelligence teachers are able to control their emotions and feelings, able to demonstrate empathy towards others, develop an ability to adjust to new changes, and imparted the best education to their students. May et al (2020) result found that managerial competencies significantly and positively influence the role performance of teachers in public vocational high schools in Bandar Lampung Province, Indonesia. Mendoza (2018) illustrates the research skills of university teachers through emotional intelligence. It was found that it develops research competency that is a perspective alternative that involves the understanding and transfer of knowledge and emotional values stimulated to research potential of university teachers. Halimi et al (2020) study acknowledges that academic success is strongly related to the use of emotions (UOE), and self-emotion appraisal (SEA). Dolev & Leshem (2016) thestudy examined the impact of teacher-centered training on teachers in Israel with aid of emotional intelligence. It was illustrated that through training programs there is an enhanced emotional competency in their professional, personal, and groups.

5. DISCUSSION AND DEVELOPMENT OF CONCEPTUAL FRAMEWORK

This study, on the basis of a review of the literature, develops and presents a conceptual model and propositions to examine the impact of emotional intelligence on in-role performance of academic staff.



There are five dimensions of emotional intelligence which are self-regulation, self-awareness, empathy, relationship management, and motivation Goleman (1998). Bardzill & Slaski (2003) defines the sub-dimensions of emotional intelligence as i) Self-motivation embracing using accessible deepest preferences to guide and move the person toward desired goals or aims and to improve and endure in the face of setbacks and dissatisfaction. ii) Self-awareness deals individual's awareness of his own feelings and emotions. So that he can make relevant decisions and develop self-confidence. iii) Self-regulation is associated with handling our emotions and feelings to ease rather than hampering the task. iv) Empathy deals to have gratitude toward others' feelings and emotions and being able to take their viewpoint. V) Relationship management helps to build cooperation, coordination, and teamwork to reduce interpersonal conflicts. These sub-dimensions have an impact on emotional intelligence either it can be a positive impact or it can be negative impact on teachers. If a person's emotional intelligence is high or low level it affects the emotional well-being that also has a positive or negative impact on the in-role performance of a person.

6. CONCLUSION

This study wants to review the emotional intelligence of teachers in higher education along with their emotional well-being and in-role performance. If teachers know how to read or understand emotional information that helps them to adapt to changes and events in their professional and personal life. It has been shown by previous research that emotionally intelligent teachers have better teachers-students relationships, professional in-role performance, better academic achievement, and a high level of emotional well-being.

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THE RISE OF DESIGN THINKING: A PARADIGM SHIFT IN BUSINESS INNOVATION

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ABSTRACT

The current competitive marketplace and fast transforming world, has led businesses to modify their strategies to survive and to address the growing business concerns in providing a favourable and positive user experience (UX), which has given rise to a new paradigm referred to as Design Thinking. This research study attempts to acquire knowledge on the concepts of Design Thinking so as to provide an understanding of the current state of Design Thinking, its attributes and non- linear process to success implemented into businesses for creating human-centric innovations.

Qualitative research design approach, in this research study, helps us to identify that Design and Design Thinking maximizes the likelihood in making valuable contributions to business and management through a Collaborative, Creative and Human-centered, problem- solving approach to an Innovation that is desirable (to the end user), feasible (with respect to technology), and viable (for sound business), fundamentally promoting a competitive advantage for businesses.

Design Thinking being a iterative process revolves around a deep interest in developing an understanding of the user for whom the products or services are to be designed and helps us observe and develop empathy with the target user, generating out-of-the-box creative ideas, tackle unknown problems, by reconsidering the problems in human-centric ways, as well as adopting a hands-on approach in prototyping and testing. Findings from the secondary sources show the relevance of Design Thinking, a popular approach which is widely adopted by various big and leading brands such as Google, Apple, Samsung, IBM, and many more; knowing its relevance in providing user-centric innovative products and services of quality, in devising unique business strategies, solving wicked or ill-defined business-related problems, creative business culture, effective change management, fosters synergy, on so on.

Keywords: Collaboration, Creativity, Design Thinking, Human-Centric, Innovation, Paradigm Shift, Problem-Solving Approach, Synergy.

1. INTRODUCTION

The current competitive marketplace and fast transforming world with unprecedented challenges and problems, has led businesses to modify their strategies to survive and to address the growing business concerns in deriving innovative solutions and providing a favourable value and positive user experience (UX), which has given rise to a new paradigm referred to as Design Thinking. If any company aspires to create a culture of creativity, innovation, and high productivity, then Design Thinking is the right mindset in the right direction to achieve it all, by transforming the way businesses develop unique products and services, operations, and corporate strategy, potentially creating synergy as well as a leveraging the business by popularity, profit, competitive advantage and growth.

Many of the world's successful brands, excellent advertising campaigns are inspired by being user-centric. Because, if product or service idea has no market value and people do not need it, it definitely won't sell, so the innovation needs to be all that a user wants or needs. As design is more than applying an aesthetic coat to a specific idea, design-led innovative products and services are not the ones that come first in the market and appear or look good, rather the ones that first build a strong connection with the user and provide them with a long-lasting functional value too.

Design Thinking has evolved as a process by IDEO back when Tim Brown, in the 1970s, coined the term "DESIGN THINKING". IDEO created the concept of Design Thinking and has been applying it since 1978, where this structured process includes 3 phases, namely- Inspiration, Ideation, and Implementation. Design Thinking gained popularity after Tim Brown, CEO and President of Design firm, IDEO, published a Harvard Business Review in essay titled 'Design Thinking' in 2008.

1.1 DESIGN THINKING: A KEY TO PROBLEM SOLVING

DESIGN THINKING IS A FRAMEWORK FOR INNOVATION AT ITS HEART:
By being an effective, flexible, and solution-driven, helps in galvanizing businesses to push their whole working around exceptional user experiences- innovations centered around users, building design solutions to real-life practical challenges for stimulating customer engagement.

EMPHASISES ON UNLEARNING AND RELEARNING:
When a design thinker initiates generating creative ideas starting from zero, taking a beginner's mindset, he/she unlearns what is already known about the problem and gets ready to relearn to work with a fresh perspective, ultimately leading to an ideal solution to the in-hand problem.

1.2 ELEMENTS OF DESIGN THINKING

According to IDEO, Design Thinking "brings together what is **desirable** from a human point of view with what is technologically **feasible** and economically **viable**". Presence of these three elements eliminates business risk, and enhances the potential for a successful innovation.

Design and Design Thinking maximizes the likelihood of success for businesses through a Collaborative, Creative and Human-centered, problem- solving approach to an Innovation that is desirable (proposed solution should be desirable from the user's perspective), feasible (proposed solution should be feasible in terms of resources -people, financial, technology), and viable (proposed solution should be viable from a business perspective- profitable and a sustainable innovation in the long-term), dazzling their existing customers, while earning them new ones.

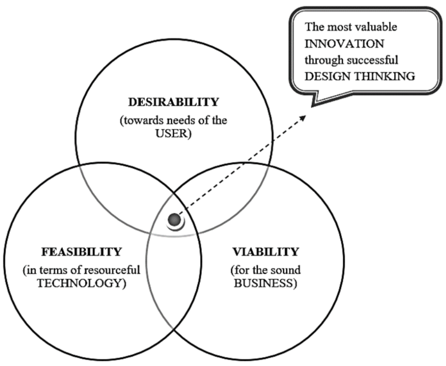

Figure 1: Design-Led Innovation

2. RESEARCH METHODOLOGY

NEED FOR RESEARCH:

This empirical research is qualitative in nature, carried with curiosity, so as to gather as much knowledge as possible about Design Thinking, its process, attributes, and real-life practices to obtain a theoretical basis to reach a conclusion.

RESEARCH DESIGN:

The descriptive research design is carried for this research to obtain a deeper understanding of the Design Thinking concepts to gain clarity.

DATA COLLECTION:

For this research study, secondary data collection method is used. Data is gathered using secondary sources such asonline databases and websites related to Design Thinking, while emphasizing primarily, on various reputed magazines, journals, articles to derive already existing knowledge, and secondly, on various companies practicing design thinking, as most of the concepts and processes are getting developed by them in the due course of developing innovative solutions.

RESEARCH OBJECTIVES:

Based on the literature review and need for the research, the following objectives are taken for consideration:

- To gain a conceptual understanding of Design Thinking based on its attributes and non-linear process.
- To study the real-life Design Thinking practices and the success attained by selected companies adopting it.
- To analyze the relevance of Design Thinking as a creative problem-solving approach to human-centric innovation.

3. LITERATURE REVIEW

Many authors have given their views on the concepts and nature of Design Thinking and its growing importance. Some of the literature reviews that proved helpful in this research are mentioned below:

Vikas T N, Vinay C T, Habeeba Amrutha Hegaddathy, Rizwan N Shaikh, Mrs. Vidya (2022), state that Design and Design Thinking have been recognized as valuable contributions to business and management, and the number of higher education programmes teaching design thinking to business students, managers, and executives is increasing.

D. Thirumala Rao and C. Rajyalakshmi Kalyani (2021), explain that design thinking is adopted by various companies to help devise strategies, marketing plans, innovation efforts, and organisational design.

Mrs. P. Deepa (2020), explains that design thinking revolves around a deep interest in developing an understanding of the people for whom we are designing the products.

Mazzuchetti Roselis N., Lopes, Elaine C. and Barbosa, Ismael (2019), stated that in order to obtain a competitive advantage against the competition, innovation becomes a fundamental part of an organisation's success.

Anne. K. Bates (2018), states that Design Thinking maximizes the likelihood of success with products and services by first observing people's needs, brainstorming out-of-the-box ideas, prototyping the best idea, and asking people for their input. Design Thinking is a collaborative, creative, and human-centered approach to producing products and services that will achieve better results.

Rim Razzouk, Valerie Shute (2012), describe that design thinking is generally defined as an analytic and creative process that engages a person in opportunities to experiment, create and prototype models, gather feedback, and redesign.

From the above literature review, it is concluded that design thinking is a creative, human-centered approach which requires empathy, idea generation for problem-solving. It is a critical success factor for any and every company who practices it to win over the market competition.

4. ANALYSIS AND DISCUSSIONS

4.1 DESIGN THINKING ATTRIBUTES

S. No.	Design Thinking Attributes / Features	Description
1.	Empathy	Keeping the users and their needs in the mind while deriving a solution through a human-centered design.
2.	Idea Generation	Brainstorming all the potential ideas, gather feedback and insights for problem-solving.
3.	Collaborative Approach	Collaborative effort by group of people working together, encouraging different viewpoints to derive variety of creative ideas.
4.	Creative, Playful and Inspiring	Encouraging a open, playful atmosphere leveraging curiosity and inspiration to generate appealing and creative ideas, that foster innovative solutions.
5.	Prototype driven	Allowing for communication, testing and gathering feedback from tangible representations of solutions such as a sample product, etc.
6.	Breaking biases	Going through multiple problems in work and life, individuals develop biases which should be broken down to be able to learn new concepts for problem-solving.
7.	Problem Solving	Being solution- focused, designers try to find unique solutions by focusing on "what could be" instead of "what should be".
8.	Iterative and Non-Linear in nature	The stages in Design Thinking process are not always sequential, and the design teams often repeat or run them in an iterative fashion, in parallel, out of order.

Figure 2: Attributes of Design Thinking

4.2 FIVE-STEP DESIGN THINKING PROCESS

Design Thinking is an iterative process revolving around developing a deeper understanding of the user through empathy, generating out-of-the-box creative ideas, tackling the problems for solving them in human-centric ways, by adopting a hands-on approach in prototyping and testing. Although, different schools of thought have created their own versions of this process, amongst which The Hasso Plattner Institute of Design at Stanford (commonly known as the d. school) gave the five-phase process of design thinking: Empathy, Define, Ideate, Prototype, and Test; being discussed in this research.

EMPATHIZE: Research and understand user needs through a human-centric approach, keeping aside any preconceived assumptions, and biases.

DEFINE: Develop insights through defining and re-defining the core problem identified by design teams being human-centric.

IDEATE: Develop a Human-centered problem statement by challenging assumptions and generating range of crazy, creative, and unique ideas, giving free reign to a successful innovation.

PROTOTYPE: Building real, tactile representations for creating in-expensive, scaled-down versions of potential solutions such as a paper sketch, etc.; so as to investigate the ideas.

TEST: Develop a best solution to a problem for testing its effectiveness and efficiency through user feedback

4.3 DESIGN THINKING IS A NON- LINEAR PROCESS

From the above Figure, this study has outlined a direct and linear design thinking process in which one stage leads to another with a logical conclusion at user testing. In practice, the process is iterative, flexible, and non-linear, as it does not follow any specific order, but an important place to start is at empathy. Design teams often use the results to redefine further problems by returning to previous stages to make further testing, iterations, and alterations to identify alternative solutions that people love.

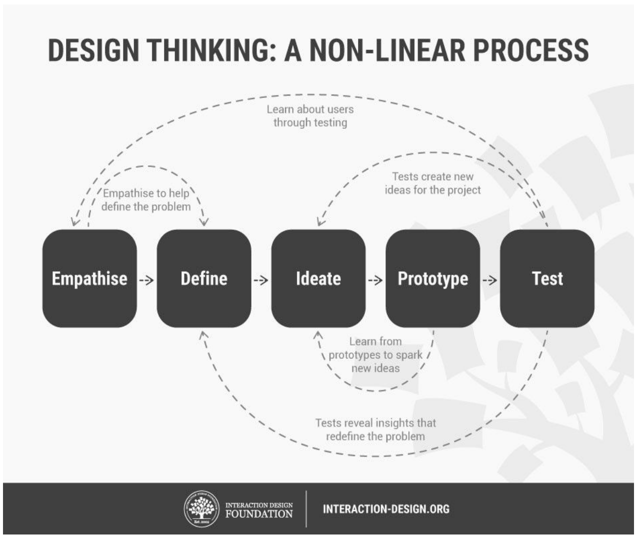

FIGURE 3: NON-LINEAR DESIGN THINKING PROCESS

(*Source: https://www.interaction-design.org/literature/article/stage-3-in-the-design-thinking-process-ideate*)

4.4 DESIGN THINKING PRACTICES: REAL-LIFE EXAMPLES OF SELECTED COMPANIES

Design Thinking is a powerful tool for success, but what does it looks like in practice? How companies apply it? and; why does it works for all of them? - Well, the answer is simple: Design Thinking, not being an exclusive property of designers- has been practiced by all great innovators and applies in various industries and professions, such as, sports, IT, entertainment, banking, travel and tourism, consumables, healthcare, education, art, music, science, engineering, business and management, etc.; as a creative approach to problem-solving.

According to a recent five-year study by McKinsey & Company, companies that consistently followed design thinking practices generated 32% more revenue with shareholders having 56% increase in returns. This higher success rate was true across banking, consumer goods, and tech industries. (Source: https://bluevisionbraskem.com/en/intelligence/study-design-led-companies-have-32-more-revenue/)

Some of the world's successful brands, such as Apple, Google, Samsung, IBM, Starbucks, Accenture, Nike, Airbnb, etc.; rapidly adopted Design Thinking approach, embracing its concept, knowing its relevance in providing user-centric innovations by investing in analyzing what people like/dislike, what pleases them the most, in devising unique solutions to business-related problems.

This research paper explains real- life examples of few selected companies that reflect the incredible effectsof design thinking done right, as follows:

GOOGLE:

At Google, Design Thinking helps foster an innovative culture, and let's design teams generate and test ideas creatively and effectively, whether they are trying to bring internet access to remote communities or developing new methods for interviewing potential employees.

APPLE:

Apple's approach to innovation, management, and design is an exceptional practice of Design Thinking, covering products- like the iconic iPhone, iPad, MacBook, Apple Watch, etc. From the smallest detail of Apple's product design, its packaging to what the company calls its "largest product" (Apple stores), to deliver positive user experience is never far from Apple employees' minds as the essence of design thinking is focusing on user's needs to build empathy, being design-centered rather engineering-centered, building user-friendly products rather complex ones.

SAMSUNG:

Samsung, successful global technology brand practices design thinking, by creating an in-house innovation and design team, after which development and Innovation enhanced. Products- like the curved screens, foldable displays, Samsung Galaxy Note Series, leading-edge technologies, are the by-product of effective design thinking. Samsung Design Thinking process is a mindset used to foster (UX), based on the "Inspired by Humans, Creating the Future" design philosophy of Samsung, consisting a four-step thinking process as a user-centric mindset- Discover, Resonate, Connect, and Deliver.

IBM:

As their former CEO Thomas Watson Jr. stated, "Good design is good business",by considering it, IBM has invested heavily in design thinking principles so as to move people forward, both emotionally and functionally, by keeping users in mind while designing processes and products and started holding empathy map sessions, working on restless reinvention, empower diverse teams, rapid iteration, all resulting in significant ROIs.

5. RELEVANCE OF DESIGN THINKING IN SOLVING THE MYSTERY OF INNOVATION

- Design Thinking works on empathy- a user-centric approach for creative, problem-solving leading to customer engagement.
- It helps produce quality products, render quality services, facilitating a long-lasting customer value.
- Focused on Human-centered design strengthened by Desirability, Feasibility, and Viability to produce a design-led innovation.
- It helps enhance company profits and return on investments, crucial for success and growth.
- It fosters a positive organisational culture by facilitating a creative work culture for smooth functioning.
- Design Thinking helps cut costs, as using human-centered design, improves the outcomes and lessens the risk of costly failures.
- It helps design a sound business, leading towards innovative business solutions and a competitive advantage.
- Diverse group working together towards a common goal so as to obtain innovative solutions fostering collaboration.

6. CONCLUSION

With the evolving world, technological advancements, changed lifestyles, post-pandemic conditions, modern business and management, design-centered solutions have great demand. Hence, the rise of design thinking as a paradigm shift for business innovation is gaining wider awareness and is undoubtedly emerging as a unique, and creative problem-solving approach available in the hands of successful companies as the most valuable strategy, utilized in solving wicked or ill-defined problems to derive an optimum innovative solution, so as to foster synergy, creative business culture, effective change management, etc. Design Thinking and design-led innovations are core aspects of every brand's success today.

7. LIMITATIONS OF THE STUDY

The validity of the data findings largely depends upon the information collected through journals, articles, websites and other secondary sources. Although, serious effort has been made to obtain relevant information and findings, however there can be some possibilities that the secondary information might not provide the required information.

8. SCOPE FOR FUTURE RESEARCH

Due to continuous growth in design thinking literature as well as real-life design thinking practices, there is an expectation regarding the acceleration of academic interest and research activity in design thinking in the upcoming years, which is also necessary. Implications reviewed in this area explain the need for the researcher to think deeply about the underlying concepts of design thinking as well as to initiate empirical study so as to analyze the current trend with respect to the growing use of design thinking by companies in deriving unique innovations.

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ADVANCE SECURITY ON SIM LOCK BY USING FACE RECOGNITION

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ABSTRACT

In this paper we have proposed face recognition SIM lock application for enhancing security purpose. Implementation of this application is for monitoring whether any unknown /unauthorized person is trying to access your SIM card. In order to get accurate and clear picture of a victim we have proposed PCA method for detecting face. As soon as someone take out the SIM card and start using it on another phone. It will detect face and then it will match face. Without the authentication process, SIM card will not be accessible to anyone. The main purpose of this application is to provide best security for SIM lock by using face recognition technique. The ending result expected for this application which could be used by many people around the world and also it is helpful to secure SIM card.

Keywords: SIM Security, Face Recognition, SIM Lock, Advance SIM Security.

1. INTRODUCTION

In modern world, numerous of people are dependent on smart phones for keeping major record of data. The need to maintain the security of information in mobile devices is becoming increasingly important and difficult. Most current phones have security for authentication. Authentication verifies that users or systems are who they claim to be, based on identity (e.g., username) and credentials (e.g., password). Mobile devices are easily lost or stolen; moreover, Password could be easily hacked or detected. For that purpose, high level of authentication for mobile devices is needed.

The term Biometrics is becoming highly important in computer security world[1]. The human physical characteristics like fingerprints, face, hand, geometry, voice and iris are known as biometrics[2]. These features are used to provide an authentication for computer-based security systems to reach high security level instead of traditional password systems[3][4][5]. Username and passwords can be replaced and/or provide double authentication by using any one of the biometric features Face is the most suitable biometric that can be used for authentication in mobile devices since those devices usually have cameras.

SIM card, also called a subscriber identity module or subscriber identification module is a small memory card that contain unique information that identify it to a specific mobile network. SIM card also capable to storing other information, such as contact list data and SIM message. Most SIM cards have a capacity of between 32kb to 128kb. Transferring this data mainly involves removing the SIM card from one phone and inserting it into another, though this has become less important with the advent of backup apps. Smartphone users usually protect the data stored on their devices by setting up a biometric lock, PIN or password.

But what about the data stored in SIM memory. What if someone takes out the SIM card and starts using it on another phone remember it contains a lot of more information other than just phone number. This includes billing information and transaction OTP, too come through SIM card.

Simply put a smart phone’s lock screen does not lock the SIM card inside it or even setting up app lock or encryption the entire smart phone or using the bout-time password on your smart phones does not protect the SIM card or its data. Well, data that is stored on it can be protected by face lock, SIM pin, which is also the only way that adds an additional layer of protection to the SIM. Once the face lock and SIM PIN lock is enabled each time, you will restart the smart phones or swap the SIM to some other smart phone, it will match face lock then ask you to enter SIM PIN, hence, authentication person can only accessible.

® face lock

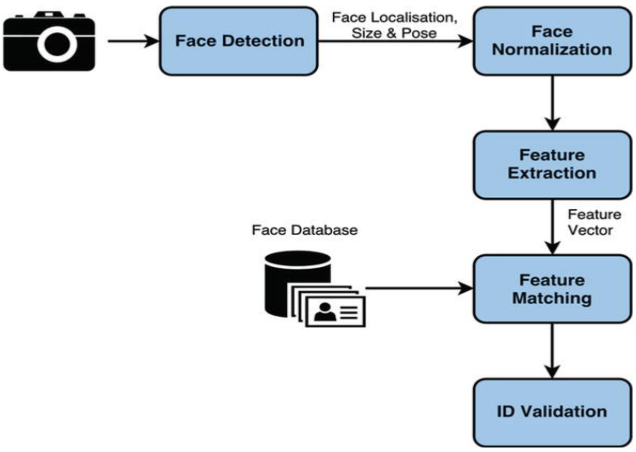
Face lock can be detected physical characteristics that are captured and stored in database and further compared with an instance for verification purpose. Further, this paper is organized as follow:

2. LITERATURE STUDY

On this project we are using a smartphone which indicates the authentic person to get Inside. the problem is if the authentic person is not there and we can not go inside because of face recognition then we have another option to open the lock by PIN on the register number and email. we can able to open the lock by PIN which is send by the device this is an additional feature of SIM lock. the SIM locking application is done by user. it is the secure way between the user and the device.

2.1 FACE RECOGNITION

The facial recognition process normally has four interrelated phases or steps [10], which are (i) face detection, (ii) normalization, (iii) feature extraction, and (iv) face recognition. These steps depend on each other and often use similar techniques as shown in figure 1. They may also be described as separate components of a typical FRS[11].Detecting a face in a probe image may be a relatively simple task for humans, but it is not so for a computer. The computer has to decide which pixels in the image is part of the face and which are not. Once the face has been detected (separated from its background), the face needs to be normalized. This means that the image must be standardized in terms of size, pose, illumination, etc., relative to the images in the gallery or reference database. After the face image has been normalized, the feature extraction and recognition of the face can take place. In feature extraction, a mathematical representation called a biometric template or biometric reference is generated, which is stored in the database and will form the basis of any recognition task. Facial recognition algorithms differ in the way they translate or transform a face image (represented at this point as grayscale pixels) into a simplified mathematical representation (the features) in order to perform the recognition task.



Subscriber Identity Module (SIM)

A Subscriber Identity Module (SIM) SIM associates a physical card used in smarphones to a subscriber of the Mobile Network Operator. The SIM's storage also includes a unique serial number ICCID (Integrated Circuit Card Identifier) which identifies the SIM globally and unique IMSI (International Mobile Subscriber Identity). SIM card usage can be monitored and controlled with two passwords: PIN and PUK. PUK is used as a remedy if PIN has been entered incorrectly too many times [2].

Capacity of the module makes possible to store a considerable number of keys which are less than 1 Kb in size [6].

2.2 LBPH ALGORITHM

Humans' beings perform face recognition every day and practically with zero effort. Although it seems like a very simple task for us, it has proven to be a more complex task for a computer, as it has many variables that can impair the accuracy of the system, for example: illumination variation, low resolution, occlusion, amongst other and more. In computer science, face recognition is basically method of recognizing a person based on their facial image. It has become very famous in last two decades, mainly because of the new methods developed and the high picture quality of the current videos/cameras.

Equations

LBPH (Xc, Yc) = 's(in-ic) 2" …. (1)
where n runs over the 8 neighbors of the center pixel, Ic. in are gray-level values in the center pixel and the function s(x) is defined in (2).
s(x)= {1, >=0…… (2)
{0, x<0

But there are few limitations to LBPH operator that its small 3x3 matrix method cannot capture the dominant features of large-scale structures. As a result of that, it fails to deal with the texture at different scales; the operator can be extended to use neighborhoods of different.

2.3 PRINCIPLE COMPONENT ANALYSIS

PCA PCA converts each two-dimensional image into a one-dimensional vector [12]. This vector is then decomposed into orthogonal (uncorrelated) principal components (known as eigen faces)—in other words, the technique selects the

Features of the image (or face) which varies from the remaining of the image. Each face image is represented as a weighted sum (feature vector) of the principal components (or eigen faces), which are stored in a one-dimensional array. Each component (eigen face) represents only a certain feature of the face, which may or may not be presented in the original image. A probe image is compared against a gallery image by measuring the distance between their respective feature vectors. For PCA to work well the probe image must be similar to the gallery image in terms of size (or scale), pose, and illumination. It is generally true that PCA is reasonably sensitive to scale variation. PCA basic steps described in Figure 2.

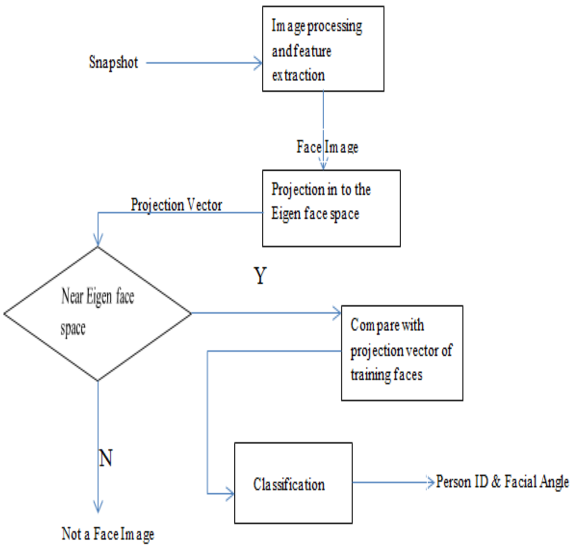


Figure 2: PCA Basic steps

3. PROPOSED METHOD

The outcome of this research is an application which is named as “SIM lock using face recognition” the SIM lock using face recognition application is one of many security applications that developed for smartphones. At this point, you’ve secured the data on your SIM. You could remove that SIM and place it in another phone, but without that PIN and biometric, the SIM is useless.

In this section, our application works with face recognition for secure the SIM in smart phones.

We introduced the algorithm of the different stages of the device such as image acquisition training phase and decision of person authority.

4. CONCLUSION

This sim lock application by using face recognition is not 100% accurate, but it works well in good light conditions. The problem with this is it can also detect faces from database for instance; someone can unlock the SIM by showing your picture from his mobile phone. To provide the enhance security; face recognition-based SIM locking has been developed. It is user friendly system. The use of PCA face recognition technique makes this system more secure. This process facilitates to avoid the problem of thefts and frauds by sufferers. In case of unauthorized person\'s trying to access then network of the SIM has gone. authorized person can access the SIM. In this paper we have implemented a face recognition SIM lock system. Recognizing of faces is done by using PCA, which gets a high accuracy and will store in the database. For this testing, we have used 40 images only. Computervision is used in the IOT. For security purpose, we have implemented real time face detection. Thus, this application can useful for smartphone users. Hence the proposed application enhances the security of SIM.

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MANAGING STRESS AT WORKPLACE

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ABSTRACT

Stress is generally indicated as a deviation from normal functioning of body and mind. Stress can approach in an organization due to many reasons such as control over work, managerial style of manager etc. Stress in limited quantity is beneficial to organization and employee as well. It helps to achieve personal as well as goals of organization. But stress in excess quantity can cause harmful effects on the body, mind and psychology of employees. Stress can be measured by using psychological methods involving use of questionnaires. Physical measurement involves measuring of various physical constants of body such as blood pressure. Physiological measures include measurements of various hormonal levels etc. And the measures to relieve this stress include sports, music, dancing, hobbies etc. Excessive stress can be reduced by help of professional counsellors. But the stress at workplace is an important issue must be dealt with to achieve progress. Day by day challenges for human is increasing in many different fields as if progress in turn creates new problems. Slowly the nature of working has been changed and still these changes are in progress. Because of these changes, number of illnesses has been increased, morality and human aspects are faded and new problems are occurred every day, so that we are facing job stress which called "illness of the century". As a measure to minimize stress, delegating some work, share burden with colleagues, leave and time off work with family and love ones, as well as reducing work overtime ranked highest as strategies for stress management. Findings of a number of studies on this aspect says that stress has a great impact on the professionals and thereby affects the level of productivity. Thus, it is recommended that professionals should exhibit self-control and good self-esteem; engage in continuous professional development on skills for better organization, integration of work within specified project constraints and delegation of assignment, authority and breaking work into manageable parts so as to be able to cope with stress.

Keywords: Stress, Stress management, Causes, Measures, Effects.

1. INTRODUCTION

In our everyday lives we get to hear the word 'stress' from our peers, colleagues, teachers and doctors. Even the word 'stress' can be heard now a days in the news, in the magazines and on other social media too. But exactly what is stress?? In the layman's language stress is' frustration or anxiety or nervousness or change in regular function of mind or body due to negative or positive influences around us'. So the definitions of stress by different experts are as follows Arnod (1960) thinks that "Stress is any condition that disturbs normal functioning". Selye (1974) defines stress as "Stress is a non-specific response of the body to any demand". According to Beehr & Newman (1978) "Stress is a condition arising from the interaction of people and their jobs and characterized by changes within people that force them to deviate from their normal functioning". A recent report by the National Association of Mental Health distinguishes stress from pressure, where pressure can be defined as a subjective feeling of tension or arousal that is triggered by a potentially stressful situation. But, where pressure exceeds an individual's ability to cope, the result is stress.

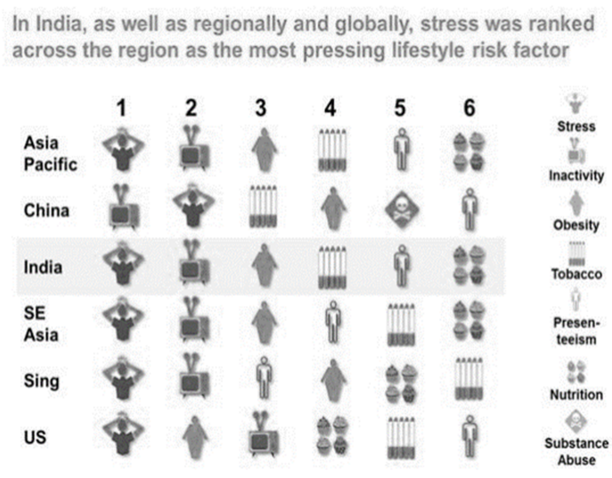
Most Stressful Jobs

Sr. No.	Job	Stress score
1	Fire-fighter	71.59
2	Military personnel	70.78
3	Military general	63.11
4	Airplane pilot	60.46
5	Police officer	50.82
6	Actor	50.33
7	Broadcaster	50.30
8	Event coordinator	49.33
9	Photojournalist	49.22
10	Newspaper reporter	48.76

2. TYPES OF STRESS

Based on its impact on body mind and performance, stress can be categorized into two types

- **Eu-stress**- Eu-stress is just a reasonable amount of stress that an individual can take. This stress has positive after effects. Eu-stress can create passion for work. It may be able to provoke hidden abilities and talents. It inspires humans to take on new activities. Such well quantified stress can lead to success.
- **Distress**- Distress is an excessive quantity of stress. This amount of stress is harmful to the individual. Distress can cause negative effects on body and mind of individual. Such stress causes effects as depression, heart attack etc.



Source: Towers Watson's 2013/14 Staying@Work survey

3. CAUSES OF STRESS AT WORKPLACE

Causes of stress can be divided into two categories based upon the source of the cause. Two major classifications are

Internal causes- These causes involve an individual's mind-set, way of thinking etc. These causes are originated from within the individual and lead to stress. These internal causes are based on perception of an individual. Even if no threat exists in the surrounding a person may feel a person or a situation threatening and may get stressed.

External causes- These causes include many external factors within an organization which affect an individual's performance in organization which are

- **Job insecurity**- When an employee works in an organization, fear of losing his/her job leads to chronic stress which causes reduced work quality.
- **Working hours**- Very odd working hours may lead to many physiological problems in employees which may lead to stress during work.
- **Control at work**- This refers to extent of control an employee has over his/her work. If employee has no or very little control over the work then he/she loses interest in the work and feels stressed to meet expectations of superiors.
- **Managerial style**- The controlling style of managers effects stress of the employees. Managers with autocratic style of control give very little freedom to the employees in decision making and planning. So, employees working under such managers are stressed due to very less control over their work and very high restrictions.
- **Over load & under load**- Overload of work means performing a large amount of work in a very short time. Such heightened expectations from any individual may lead to stress. Elsewhere under load is very short amount of work to do and time available is too much. Here employee questions his/her capacity and feels stressed.
- Sometimes situations requesting behavioral changes may put an employee under stress due to need of behaving in a way which is not natural for the employee.

Top causes of work-related stress:

When quizzed on sources of stress, Indian employees rank unclear or conflicting job expectations (40%), inadequate staffing (lack of support, uneven workload or performance in group) (38%) and lack of work/life balance (38%) as the top three reasons according to Towers Watson's Global Benefit Attitudes Survey that polled 22,347 global workers out of which 7,094 workers are in Asia Pacific (2006 workers are based in India).

In Asia Pacific, the top contributors were inadequate staffing, low pay (or low increase in pay) and lack of work/life balance. Globally, inadequate staffing is common as the single most important contributor to work-related stress.

Top causes of work-related stress for employees

	India	Asia Pacific	United States	EMEA
Unclear or conflicting job expectations	40%	29%	36%	33%
Inadequate staffing (lack of support, uneven workload or performance in group)	38%	41%	52%	49%
Lack of work/life balance (excessive workloads and/or long hours)	38%	32%	24%	28%
Organizational culture, including lack of teamwork, tendency to avoid accountability and assign blame to others	32%	31%	33%	31%
Low pay (or low increases in pay)	29%	37%	38%	28%
Technologies that expand availability during nonworking hours (e.g., mobiles, notebooks)	27%	16%	8%	9%
Lack of supervisor support, feedback and not living up to their word	26%	23%	23%	22%
Lack of technology, equipment and tools to do the job	18%	18%	13%	15%
Fears about job loss, too much change	16%	16%	20%	22%
Fears about benefit reduction/loss (e.g., lower value or loss of health care coverage, reduction in retirement benefits)	12%	16%	11%	7%

Source: Towers Watson's 2013/14 Staying@Work survey

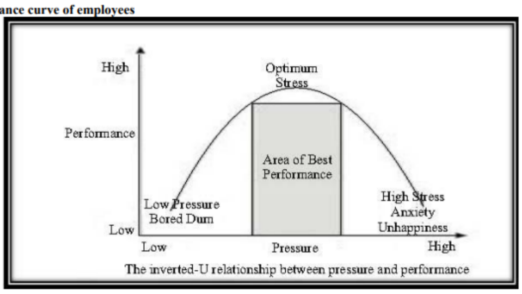
4. HOW TO MEASURE STRESS?

There are many methods to measure stress. Measuring stress is quantifying the response by the body responds to a stressful situation. These indicators for stress involve measurement of an array of properties of body which are changed during stress.

- **Psychological measurements**- These measurements measure stress based upon psychological observations. Each person has a different psychology and way of reacting towards any stressor. Hence to gather those responses in stress many questionnaires were prepared which contain questions which measure response to stress.
- **Physiological measurements-** When someone comes across any situation which induces stress, the HPA axis of the person is activated which contains Hypothalamus, Pituitary, Adrenal glands of endocrine system. On stimulation, these glands produce their hormones i.e. Cortisol and catecholamines. Elevated levels of those hormones are found in blood, urine and plasma of the person undergoing through stress.
- **Autonomic measures**- These include changes in various constants of body and concentration of various enzymes.
- **Blood pressure**- When a person is undergoing • through stress, blood pressure is elevated from its normal 120/80 values.
- **Vagal tone-** Vagal tone is a parasympathetic • response which leads to prevention of reducing heart rate during sleep or rest. Which means that during sleep, the person's heart beats with the same force as it beats when he is awake?
- **Salivary alpha amylase-** This enzyme in saliva• is major indication for stress. The levels of this enzyme are elevated during exercise. And the link between level of catecholamines and salivary alpha amylase is proven. Also, this enzyme can be used to measure action of parasympathetic nervous system.
- **Salivary Cortisol**- Salivary Cortisol represents• amount of Cortisol not bound with any receptor. This concentration can pass through blood brain barrier

and alter high order cognitive functions such as learning, memory, emotional processing.

Performance curve of employees



Explanation of performance curve: When pressure on an employee to perform a task is low then employee gets bored due to lack of enough motivation due to pressure from superiors. At optimum pressure, employee is highly motivated to do his work and shows best performance. But when levels of stress exceed the optimum level, employee is unable to cope up with such a high stress and employee faces various disorders like anxiety. Hence according to above curve, in an organization, optimum pressure must be put on employees so that they give their best performance.

5. EFFECTS OF STRESS

Humans are most intelligent animals on earth. But still they fall prey to stress created by their own organizations and companies. This situation is equally dangerous for companies because excessive stress in employees cause employee turnover. Highly stressed employees choose to remain absent to avoid stressful environment in organization. Employees who are highly stressed lack motivation. When body encounters any threatening or stressful situation, body shows three distinct phases to combat the stress

- **Alarming stage**- Here body prepares to execute fight/flight action. Here blood pressure increases, blood vessels are dilated, process of digestion slows down, and breathing is faster and deeper. Body stores energy for upcoming response.
- **Resistance**- Here the stimulus of threat persists. The body adjusts towards the stimulus and tries to reduce the effects of stress. Body uses its capability of adaption as a shield to fight against the threat. Body becomes habituated towards the stimulus of stress and is able to tolerate it.
- **Exhaustion stage-** In this stage, the body cannot cope up further with stressing stimulus. The adaptation power of body decreases and body is susceptible to symptoms of stress.

Physical consequences: Stress can manifest itself into various physical observations in the form of altered functioning of system. Altered functioning of cardiovascular system causes high blood pressure. Stress on muscoskeletal system causes headaches and tension. Stress causes change in motility of GIT hence causing constipation or diarrhoea. Stress may affect CNS of employees to cause light headedness, fainting or dizziness. It also causes sudden ringing in ears. Stressors can increase sweating and cause clammy souls and palms. Even the respiratory system is affected by stress causing difficulties in breathing and sighing. Stress also affects our immune system which makes us susceptible for infections such as common cold etc. Unexplained and/or frequent allergy attacks are common in stressful condition due to sensitized body. Stuttering or stammering while talking is commonly seen in stressed individuals. Belching or flatulence is seen. Grinding and gritting teeth are present in stressed individuals.

Psychological problems: Constant stress causes altered psychology of individual. A chronic stress may present itself into varieties of observations. Stress causes decreased confidence of an individual hence it creates nervousness. Stress causes excessive anxiety where person always worries over minute things. Stressed person always shows guiltiness due to his reduced work capacity. Stress causes insomnia. Stress gives a person his worst nightmares. Stress makes a person devoid of sleep. Stress causes occurrence of disturbing dreams. Stress causes disturbed concentration. Stress causes racing thoughts through the mind. Stress increases forgetfulness. Stress makes you more emotional. Stress causes fear and anxiety. Stress for a long time causes depression. Capacity to take decision is hampered. Stressed people are susceptible to dementia and Alzheimer more than healthy individuals.

Behavioural problems: Stress causes induced behavioural changes which can be directly seen into stressed individuals. Stress causes short temperedness of an individual. Stress causes frustration in stressed individuals. Such frustrated individuals become more hostile due to feeling of depression. Stressed individuals seem to be more forgetful in remembering small details. People suffering through stress are disorganized. These people are more confusing in taking even a small decision. Stressed people cannot learn new things very easily. Stressed people often feel lonelier than other people. They often show feeling of worthlessness. These people show suicidal tendencies. People undergoing stress are more confused. Stressed people show more possibility of obsessive/compulsive behaviour.

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How can you combat stress?

There are many effective ways which help an individual to combat stress and live a happy and healthy life.

These methods include-

- **Get more sleep**- which provides proper rest to body and helps combat the effect of stress.
- **Enter in physical activities**- physical activities boost the mind and body and help to regain the confidence which is lost due to stress.
- **Relaxation techniques-** such as arts, dance, music help people to get more creative and relieves the stress.
- **Talking to a close one-** talking to a close one helps to relieve stress and provides comfort.
- **Time management**- allows efficient usage of time. And which helps persons to organize his/her activities. And which helps to maintain daily course of activities and it reduces stress.
- **Say 'NO' to additional unimportant request**- taking additional, unimportant requests which are not necessary, increases the workload and causes additional stress.
- **Take adequate rest if you are ill-** taking adequate rest helps people recover from the symbols of stress and helps to improve the mood.
- **Avoid habits such as smoking, alcohol etc. -** these products cause dependence and further induce stress by need of continuous consumption of these products.
- **Facing the cause**- facing the cause of stress is one of the major solutions to reduce the stress. When you face the stressor, the reason of stress is no more and the person is free from stress.

6. ORGANISATIONAL MEASURES TO COMBAT STRESS

The following measures can be taken by organisations to combat stress:

- **Reducing Long working hours**: Organisations should see that long working hours of employees should be reduced and proper time management techniques are taught to them.
- **Teaching Employees to do Work-Life balance:** Required trainings should be given to employees to maintain the work-life balance.
- **Use of Technology:** The organizations should use the available technology and provide specialized training courses on any topic required for work advancement.
- **Communication -** The organizations should encourage communication and always asks for feedback, where the HR manager should always directly accessible to any employee to listen to. The organization always try to follow up with all corporate and business news, in addition to new studies published regarding work stress, how to spot it and solve it.
- **Security Fears -** The Organizations should take efforts in making employees and people feel safe by applying laws for security checks, checking identities of visitors to the firm and not allowing unauthorized people to enter.
- **Introduction of Retirement Plans -** Applying Social Security system and pension funds, which is a great insurance and relief for employees in order not to worry about their retirement any more.
- **Job stability and fear of downsizing** - The Economic Crisis is very complex. Unfortunately, layoffs and downsizing are forced on many organizations, and there is nothing that management can do internally to stop this issue.
- **Workplace Diversity** -The firms should hire all kinds of experiences from all ages, genders, and from all levels of educations.

7. TOP 10 STEPS TAKEN BY EMPLOYERS TO MANAGE STRESS

	India	Asia Pacific	United States	EMEA
Flexible working options	50%	40%	51%	50%
Stress mgmt interventions (e.g., workshops, yoga, tai chi)	43%	38%	39%	16%
Education and awareness campaigns	41%	41%	40%	26%
Promotion of employee assistance program (EAP)	40%	24%	85%	29%
Specialised training for employees	30%	26%	23%	39%
Training for managers	23%	24%	34%	41%
External resources used to design and deliver program(s)	16%	12%	23%	18%
Expanding EAP and other services to dependents	15%	10%	46%	25%
Anti-stress space	12%	10%	10%	4%
Written guidelines on stress	10%	9%	7%	9%

8. CONCLUSION

Now we can conclude that stress is an important factor for the employees in any organization. Stress within a specific limit helps to achieve necessary objectives. But if stress exceeds any particular limit, then it shows its harmful effects on the body, mind and behaviour. Now the ways to cope with the stress include adequate sleep, sports, talking to a close one, relaxation habits and quitting of addictive products. These all must be used to get relief from stress. Workplace stress plays a significant role in physiological and psychological well-being of employees. It also affects the productivity and performance of organisations. The various results of workplace stress like physical problems, mental disturbances, emotional imbalance, lifestyle disturbances and behavioural problems lead to disturb the climate of the organisation. These issues create interpersonal conflicts, decreased productivity, low organisational commitment, increased absenteeism and more attrition etc. By facilitating the employees with effective training, the management can provide them with platform to solve their stress related problems. Yoga, meditation, exercise and recreational activities can provide better environment to control stress. Even time management skills help to manage stress in an effective manner. These simple but useful steps can pave the path for improved efficiency of employees and increased productivity of organisation.

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FUTURE CONNECTED WIRELESS SYSTEM-CORE ARCHITECTURE & TECHNOLOGY FOR 5G WIRELESS SYSTEM / MOBILE COMMUNICATION

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ABSTRACT

New generation mobile technology like 5G is having various profits as compared to old generations i.e. 1G, 2G, 3G and 4G. The next generation (5G) of mobile technology gives offers flexibility, interoperable, lower latency, ten-times the available spectrum, ten-times the number of devices with a fraction of the latency and 10 time faster than 4G that helps all stakeholder of 5G but also 5G wireless networks will specify the evolution beyond mobile internet to enormous or gigantic Internet of Things (IoT) for the next upcoming days. In current scenario, several 5G mobile technology networks have already been built for testing and early deployment. Today, 5G mobile network is a very adoptable and growing area and with the development of this technology will come many challenges.

5G network might include all types of advanced technologies to provide extraordinary services. In Mobile telecommunication (5G), cloud-based services provide flexible and efficient ICT solutions (technology and information technology) by reducing investment costs and management in IT infrastructure. The basic uses of 5G include advanced mobile broadband, robotic surgery, smart cars, realistic or unpopular taxpayers we see, and IoT. The main focus is 5G technologies are beam forming and small cells are the pivotal technologies that allow 5G to be implemented. Creating a beam reduces signal propagation loss with antennas that continuously track the signal spatially and steer the beam in a fixed direction. It's ready to catapult 5G into the 6-300GHz spectrum, along with tiny cells, which are low-power, short-range wireless transmission systems over a geographic area.

The main objectives of 5G technology to fulfill the need of information society that can change user habits and it create a wireless environment. The goal of this generation is to produce specifications for a new radio access technology to provide higher data rates, low latency and generates spectral efficiency.

In this paper, the emergence with background of 5G technology or mobile networks and core architecture and using a specific technique or methodology or technology and some specific guideline for future that to be considered by the organization before developing and integrating 5G network. Which will change and define the future of telecommunications standards such as e-payments and electronic documents and many more such as high quality video streaming user can benefit from 5G mobile technology, video chats provide a realistic feeling one can reach the other side with screen, fast data speed, Ultra- low latency, Better Internet speed.

Keywords: 5G Mobile Networks, 5G Wireless, IoT, Wi-Fi 6, Next Generation, Wireless Communication System. Massive MIMO, C-RAN, centralized radio access network, LTE.

1. INTRODUCTION

The new innovations that are trip by the rise of a new set of standards define new stages in the history of mobile technology, which are classified as generations. We are currently moving towards the fifth generation (5G) of mobile technology networks. Wireless technology is technically started with 1G, and in the beginning of 1990s, it was developed into 2G where companies send messages between two mobile devices impressed the world.

Eventually the world moved on 3G, which provided freedom of call, send text messages, and browses the internet in the best way speed. 4G has improved many capabilities; it is only possible for the third generation wireless. The evolution of cellular communication network technologies from the 2G Global System for Mobile (GSM) to the 4G Long Term Evolution-Advanced (LTE-A) system. When technology goes from 2G GSM to 3G Universal Mobile Telecommunication System (UMTS), higher network speed and instant download speed allowed real time video calls.

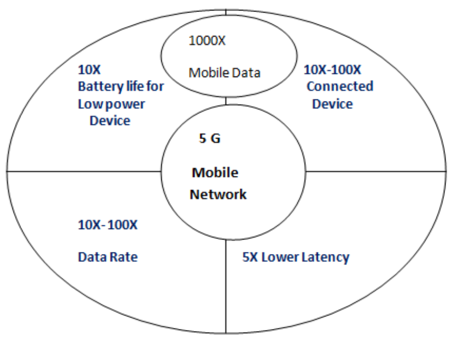


Figure : 5 G Requirement Function

The next LTE and LTE-A provided have been upgraded network capacity and reduction of system access-server delays, enabling triple play traffic (data, voice, and video) access possible wirelessly, anytime anywhere.

In gigantic data rate has an increase from 64 kbps in 2G, 2 Mbps in 3G and 50-100 Mbps in 4G. 5G is expected to improve not only the speed of data transmission of mobile networks but also the increase, connectivity, and energy efficiency of network i.e. up to 1 Gbps.

Basic difference between 5G and Wi-Fi 6 are complementary to each other that offer higher speeds, lower latency, and increased capacity.

1G	2G	3G	4G	5G
1981	1992	2001	2010	2020
2 KBPS	64 KBPS	2 KBPS	100 MBPS	10 GBPS
Basic voice service using analog protocols	Designed primarily for voice using the digital standards (GSM/CDMA)	First mobile broadband utilizing IP protocols (WCDMA / CDMA2000)	True mobile broadband on a unified standard (LTE)	'Tactile Internet' with service-aware devices and fiber-like speeds

Figure 1: Development phase for 5G Mobile Network

5G networks must be able to support such communication networks i.e. high-speed or fast networks can easily reach 350 to 500 km/h, while 4G network scanning only supports connections conditions up to 250 km/h. 5G mobile network will be able to access different wireless technologies same time. The 5G mobile technology should be able to combine special flow from different technologies.

It represents a future telecommunication system to achieve a big step of compared to the current cellular technology as an example of revolutionary changes in the radio interface. Wireless communication and its types and categories of support systems and devices have overcome all traditional communication systems and have provided the potential to expand global economic systems. Therefore, the following are the most important aspects of the definition for 5G: high through put, low latency, high reliability, and energy-efficient mobile communication technology.

2. NEXT GENERATION MOBILE NETWORK ALLIANCES

Sets out the priorities for 5G networks:

- Increased Data rates.
- 1 GB per second simultaneously to many workers on the same office floor.
- SPECTRAL efficiency more enhanced as compared to 4G Coverage speed.
- Signaling efficiency enhanced.

3. FRAMEWORK OR KEY BENEFITS OF 5G TECHNOLOGY/NETWORKS

The implementation of standards under a 5G roof would likely be around the year of 2021.

- 5G is a totally wireless communication network with no limitation, called it REAL wireless world. 5G technology will bring almost perfect real-world wireless or called WWWW: World Wide Wireless Web.
- High Data Rate: We can send Data much faster than that of the previous generations.
- Using wearable devices with Artificial Intelligent capabilities.
- Energy Saving, Money Saving & More Effective.
- Less data traffic Congestion.
- Low Latency: Fast Response in downloading
- Supportive High Speed Multimedia: Additional features such as Multimedia Newspapers, also to watch T.V programs with the clarity as to that of an HD T.V., Clarity in Voice and Audio Calling
- Large Broadcasting: Data can travel in GB/s

4. ARCHITECTURE FOR 5G WIRELESS OR MOBILE NETWORK TECHNOLOGY

Before describe the architecture of 5G mobile network, we are describing the architecture of 4G in short-

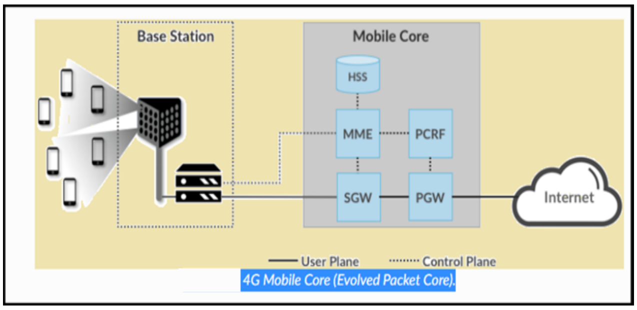
4G mobile Core Architecture: 4G Mobile Core, officially known as 3GPP as the Evolve Packet Core (EPC), has five main features, the first three of which are operational on Control Plane (CP) and the second two on User Plane (UP).

HSS (Home Subscribers Server): A database that contains all the information related to subscribers.

PCRF (Charging Policy and Rules): Tracks and manages policy rules and records payment data to subscriber volume.

SGW (Serving Gateway): Transfer IP packets to and from RAN. The services that carry UE, so it is involved in hand-delivery from one base station to another.

PGW (Packet Gateway): Basically, an IP router, which connects Mobile Core with an external Internet. Supports additional access related functions, including policy enforcement, traffic building, and charging.



4G Mobile Core (Evolved Packet Core).

5. 5G MOBILE CORE ARCHITECTURE

5G Mobile Core, also known as 3GPP -NG-Core, uses a micro service-like structure, while 3GPP data defines this level of incompatibility; it simply determines the set of active blocks and not implementation. The set of functional blocks is very different from the collection of engineering decisions leading to the construction of a micro service-based system. Next arranges a set of active blocks into three groups. The first group runs on Control Plane (CP) and has colleagues on EPC.

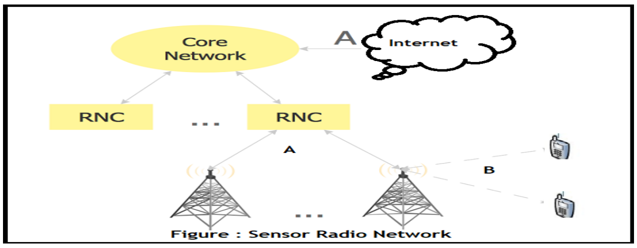


Figure : Sensor Radio Network

AMF (Core Access and Mobility Management) mission: Responsible for connection and access management, mobility management, authentication and authentication, and local services. Manages items related to EPC MME mobility.

SMF (Session Management Task): Manages each UE session, including IP address allocation, compatible UP job selection, QoS control features, and UP route control features. It is almost identical to the MME part of EPC and the control features related to the EPC PGW.

PCF (Policy Management Function): Manages policy rules performed by other CP functions. It is almost the same as PCRF for EPC.

UDM (Integrated Data Management): Manages user identity, including the creation of authentication credentials Includes the HSS component of the EPC process.

AUSF (Authentication Authenticator Server): Actually, an authentication server includes the HSS component of the EPC process.

The second group also runs on Control Plane (CP) but does not have a direct partner in EPC:

SDSF (Structured Data Database Network): A “helper” utility used to store structure data. It can be used by the "SQL Database" in a system supported by micro services.

UDSF (Random Data Storage Function): A "helper" utility used to store random or unstructured data. Can be used by "Key / Value Store" in a system supported by micro services.

NEF (Network Exposure Function): Ways to disclose optional capabilities in third-party services, including translation between internal and external representation of data. It can be used by the "API Server" on a system supported by micro services.

NRF Function (NF Repository Function): Ways to find available services. It can be used by "Discovery Service" in a system supported by micro services.

NSSF (Network Slicing Selector function): Ways to select a piece of network using the given UE. Network fragments are actually a way to separate network resources in order to separate a service provided by different users.

The third party includes the same thing that applies to User Plan (UP):

UPF (User Aircraft): Transfers traffic between RAN and Internet, compatible with S / PGW combination to EPC. In addition to package transfers, it is responsible for policy enforcement, official blockade, traffic use reporting, and QoS police.

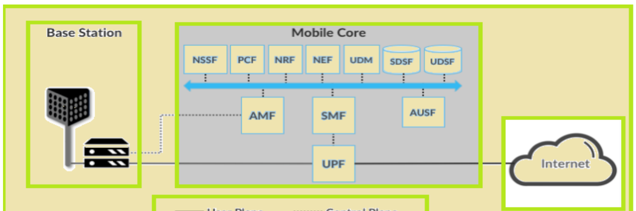


Figure 5G Mobile Core (NG-Core).

The first and third groups are best regarded as a direct repetition of 4G EPC, while the second group - albeit with a free name - is 3GPP's way of identifying the cloud solution as the ultimate demand for Mobile Core. In a nutshell, introducing different end-to-end services means that all other services are innumerable and, therefore, easy to read. Also note that Figure adopts a general view of micro service-supported systems, that is, to display a message bus that connects everything rather than installing a complete set of pair wise connections. This network model a well-understood implementation strategy.

As shown in the figure above the 5G model is a complete IP-based model for wireless and mobile networks. The system contains the user's storage space and a number of independent wireless technologies. Each radio technology is considered an external IP connection.

6. TECHNOLOGIES/ TECHNIQUE/ METHOD FOR 5G MOBILE NETWORK

In information theory, the Shannon-Hartley theorem (Shannon, 1949; Herbert Taub, 1986) describes the maximum rate at which information can be transmitted over a radio communication channel. Higher transmission speed can be achieved by using more spectrums (W), more antennas (n), and less interference (SNR).

Shannon's Law

$$\underbrace{C}_{\text{Capacity}} \approx \underbrace{W}_{\text{Spectrum}} \cdot \underbrace{n}_{\text{Antennas}} \cdot \log_2(1 + \underbrace{SNR}_{\text{Signal Quality}})$$

5G mainly relies on these technologies to implement performance breakthroughs:

- Millimeter waves,
- Massive MIMO
- Beam forming, and
- Small cells.

Millimeter Waves Technology: The first and perhaps most important technology is the use of millimeters (mmWave). MmWave and 5G are used in parallel. The big difference is that mmWave technology is only one part of what future 5G networks will use. Since the advent of mobile networks back in the 1980s, all devices have been operating at a frequency spectrum between 3 kHz and 6 GHz. With the advent of the Internet of Things, smart watches, real reality, self-driving cars, and many other technologies that require fast wireless connectivity, conventional bands are becoming increasingly crowded. The number of connected devices is expected to grow exponentially to over 50 billion by 2020 (Source: Cisco, 2016).

Massive MIMO Technology: The 2nd important technology for 5G networks is massive MIMO. Massive MIMO technology is used in a smaller form with base stations that have 8 to 12 antennas to handle the traffic they transmit and receive. Massive MIMO explain this method with the ability to equip hundreds of antennas per base station. For example, Ericsson began deploying 64 array similar antenna systems, after that Huawei and ZTE successfully deploying the use of 96 to 128 array systems. The numbers of antenna each channel will continue to increase with progress in research and development. If multiply these numbers by population density of cities, Massive-MIMO is important in providing connectivity to these devices. With good design and deployment, massive MIMO will be able to connect over 1 million devices per square kilometer. This technology is enough to offer quality connection in strongly packed areas such as stadiums and city hubs, where current 4G mobile network often struggle and even fail. The main problem with massive MIMO is the interference that all the intersecting radio waves will create. Beam forming & Small Cells technologies will solve the issues that arise due to the use of mm-waves and massive MIMO technology.

Beam forming Technology: Beam forming is one of the essential data transmission technologies required for massive MIMO technology. It also reduces signal propagation loss for high-frequency millimeter waves. Beam forming technique such as a crossing guard by transmitting signals directly to the point of use. Signals are tracked and are sent where and when they are require reaching their destination device. Beam forming technique works dynamically, like a spotlight on the stage tracking a performer. When the performer moves around, the spotlight track or follows the performer. Based on the arrival angle of the energy, and based on reflection in the environment, beam forming technique or algorithms select the best communication path between User devices and base station. Beam forming can even be aware enough of the environment and can bounce signals off obstacles to reach the destination location. Qualcomm has demonstrated the 5G mmWave beam that builds and scans for internal and external traffic conditions (Qualcomm, 2018).

Small Cells Technology: The Small cells algorithms works are low-power and short-range wireless transmission systems that includes small geographical areas or indoor mobility applications. Small cells are establishment by base stations and still have the fundamental function of a traditional base station. Small cells forward high-speed mobile broadband services efficiently and play a significant role in LTE advanced and 5G networks. Depending upon the location and number of users it can support, there are three types of small cell technique- metrocell, picocell, and femtocell. The practical steps for each phase are summarized in the following table.

Types of Small Cell/ Attributes or Properties	Metro Cell	Pico Cell	Femto cell
Power(Watts)	2 to 5	0.25 to 1	0.1
Coverage Area(meters)	500 to 2500	100 to 250	10 to 50
Application	Outdoor	Indoor	Indoor
Capacity(Users)	Up to 200	32 to 64	8 to 16

Small cells are not new things or technologies, but they are widely used in the development of mobile networks. In 5G mobile technology, this technique will be to reducing propagation loss of mmWaves and building framework in routing beam forming signals. This technology ensures high speed and latency coverage across the network.

7. CONCLUSION

In this paper, we have studies a systematic approach for 5G core architecture, technique or network technology for wireless or mobile communication system. This technology is works or designed for an open platform on different layers, from the physical layer up to the application layer. The modules that shall provides the best Operating System and lowest cost for a specified service using one or more than one wireless technology at the same time from the 5G mobile and the terminal should be able to merge different flows from different technologies. A new revolution of 5G technology is about to start , 5G technology going to give tough completion to computing devices whose marketplace rate will be affected. The core infrastructure or new coming 5G technology offer higher capacity, better quality of service, inexpensive rates, high peak expectations and much reliability and greener technology. 5G network technology will offer a novel age in mobile communication system.

The 5G mobile networks will revolutionize the wireless market through a combination of upgraded technologies to meet the need for launching a high-speed mobile network. To design 5G with such capability, a denser network with small cells is the key and radio spectrum should operate within a larger matrix of sharing arrangements, GSMA (Global System for Mobile Communications Association) forecast that by 2023, mobile economic contribution will reach $4.8 trillion (4.8% of GDP). Over the next 15 years, 5G technologies are expected to contribute $2.2 trillion to global economy (Source: GSMA, 2019).

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INNOVATION & ENTREPRENEURSHIP

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ABSTRACT

Entrepreneurs play a very important role in the economic development of a country. New economic policies and liberalization methods have helped many entrepreneurs to seek their fortunes, thus contributing to the growth of economy. Entrepreneurship is an act of starting a new business by bringing innovative concepts, generating employment, bearing risks and mobilizing resources. Entrepreneurship is a key factor in economic growth, innovation and growth of enterprises, organizations and businesses. Globalizations, changing cultures, popular attitudes, new policies and the advent of new technologies have strongly highlighted the importance of entrepreneurs and entrepreneurships. Entrepreneurship has now become a dynamic and expanding area of study, research and teaching.

Keywords: Entrepreneurship, Globalizations, Business, Innovation.

1. INNOVATION AND ENTREPRENEUR

An entrepreneur is a person who starts a new venture or business by undertaking risks and mobilizing resources in a view to get profits and generate employment. Entrepreneurs are considered as an important input and catalyst of economic development both within and outside the country. You will now learn the meaning, definition, need, importance, characteristics and functions of an entrepreneur.

By their innovative, inventive and risk-taking behaviour, entrepreneurs create wealth and capital by using various resources of a country. Entrepreneurs play a pivotal role in the industrial development of a nation. They are the prime movers of a country's economy. Entrepreneurs and entrepreneurships are found in every type of economic activity in an economy. Entrepreneurs could be from any of the business activity, such as trade and commerce, import and export, engineering, banking, industries, forests, tribal development, politics, bureaucracy and from other professions. Entrepreneurs and entrepreneurships are very important to the growth of an economy.

Successful entrepreneurs are always innovative in their approach. They have the skill of innovating new concepts and ideas, to resolve issues. ***For example,*** the iphone has changed the face of smart phones with its innovative design and features. Successful entrepreneurs have the creativity to recognize and pursue opportunities.

Entrepreneurs create new businesses: Innovative offerings from entrepreneurs, in the form of new goods and services, result in new employment opportunities. New ventures help to stimulate the growth in related businesses or sectors that support new products or services, resulting in further economic development. ***For example,*** there were very few IT companies in India in the 1990s. The IT industry used to provide supportive or backend services only. Soon the industry gathered momentum in its domain and witnessed rapid growth after 2000. Other sectors also immensely benefited from IT industry.

Entrepreneurs add to national income: Entrepreneurial activities in a country generate new wealth and new income sources. New and improved products or technologies from entrepreneurs help to explore new markets.

Entrepreneurs create social change: Entrepreneurs depend less on old systems and technologies, by creating innovative methods. This results in improved quality of life and economic freedom. ***For example,*** people in some regions collect drinking water from different sources. If water is provided to them by some innovative pumps, then they focus on their core jobs without worrying about the basic necessity of water. More time to devote results in economic growth.

Entrepreneurs help in community development: Entrepreneurs also invest in community projects and provide financial support to local organizations and charities. This helps in community development at village level. Therefore, a balanced approach to nurturing entrepreneurship in a country will have a positive impact on economy and society.

2. INNOVATIVE FUNCTIONS OF ENTREPRENEURS

In the earlier days of economic development, entrepreneurs tend to have less initiative and show less motivation. As development proceeds, they become more innovative in their work and more enthusiastic in their experimentation with new methods. The nature and behaviour of entrepreneurs mainly depend on the functions they perform.

There are several functions of an entrepreneur. The important functions performed by an entrepreneur are given below:

Functions of an Entrepreneur

- Develop innovative products and technologies
- Choose the best option
- Develop management skills
- Overcome resistance to change
- Prepare to face risks
- Act as a catalyst of economic development

Act as a catalyst of economic development: Entrepreneurs play an important role in the growth of economic development in a country. He invents new methods of using the available resources and maximizing their utilization.

In order to develop innovative ideas, an entrepreneur should possess the following traits:

Risk taking: A tolerance for risk taking is an important characteristic of entrepreneurs. Risk taking refers to pursuing an activity even though there is a chance of negative consequence. Starting a new venture or business may be risky. It is more so when an entrepreneur is using his own money. However, entrepreneurs can spread the risk by convincing investors to come along on your new venture or by forming an entrepreneurial team. ***For example,*** Eddie Murphy, an entrepreneur, initially tried to convince some friends to form an entrepreneurial team. Eddie has a friend who studied accounting and another who completed a course in marketing. Eddie hoped to bring their skills for the growth of enterprise.

Self-motivation: Self-motivation is another important characteristic of successful entrepreneurs. An entrepreneur must be motivated to work towards realization of the vision and goals. That type of motivation should come from within the individual. Other people can give suggestions, but the entrepreneur should get motivation from within himself. If an entrepreneur needs constant push from others, then the chances of success in business are greatly reduced.

Optimistic: Entrepreneurs are enthusiastic, optimistic and future-oriented. They believe that they will be successful and are willing to risk their resources in pursuit of profit. Entrepreneurs generally have high energy levels to complete the tasks in front of them. They always think about their business and how to increase the market share of their products and services.

Leadership: A good entrepreneur should also be a good leader. A good leader knows when to listen to others. An entrepreneur should not always stubbornly refuse to consider other viewpoints. This is because a task can be completed better by those with more suitable skill sets. With a sense of perception and logical reasoning, a successful entrepreneur will be in a position to convince others to do the work in a way he likes them to do. It is not the physical, but intellectual leadership he will use for convincing others. ***For example,*** Dhirubhai Ambani was an example of effective entrepreneurial abilities and leadership qualities. Dhirubhai used every opportunity that came his way and successfully built the ` 620 billion Reliance Industries. This success showcases his entrepreneurial abilities along with his potential to turn ideas into reality.

Flexibility: Remember that an entrepreneurial venture is not simply about doing what you believe is good, but also making successful business out of it. Successful entrepreneurs are flexible and welcome all suggestions for optimization or customization that enhances their offering and satisfies client and market needs.

Technical knowledge: Entrepreneurs are naturally capable of setting up the internal systems, procedures and processes necessary to operate a business. Successful entrepreneurs rely on their business skills and take the support of technology.

Vision: One of the responsibilities as founder and head of an enterprise is deciding where the business should go. That requires vision. Without it, the enterprise will lose in achieving the targets.

Time management: While entrepreneurs need a steadfast vision and direction, they will face a lot of unknowns. They will need to be ready to tweak any initial plans and strategies. Time management helps them in timely delivery and better ways of doing things that may come along as well.

Decision-making ability: An entrepreneur will not have room for procrastination or indecision. Such traits stall progress, but they can also cause to miss crucial opportunities that could move towards success.

Problem solving: A successful entrepreneur takes each problem as a challenge and put in best efforts for finding out the most appropriate solution.

Self-confidence: Entrepreneurs do not go down by difficulties as they believe in their own abilities and strengths. They have faith in their knowledge and competences. They are not worried about future consequences and uncertainties.

Dynamism: Entrepreneurs ensure that everything is carried out in their organizations as per their wish. With their dynamism, they ensure regular monitoring of the working so that the goals of the organisation are achieved in best possible manner.

3. IMPORTANCE

By their innovative, inventive and risk-taking behaviour, entrepreneurs create wealth and capital by using various resources of a country. Entrepreneurs play a pivotal role in the industrial development of a nation. They are the prime movers of a country's economy. Entrepreneurs and entrepreneurships are found in every type of economic activity in an economy. Entrepreneurs could be from any of the business activity, such as trade and commerce, import and export, engineering, banking, industries, forests, tribal development, politics, bureaucracy and from other professions. Entrepreneurs and entrepreneurships are very important to the growth of an economy.

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4. ENTREPRENEURS IN THE MODERN DIGITAL AGE

The modern digital age has redefined the possibilities of entrepreneurship. The ability to build a network has become an important characteristic of an entrepreneur. ***For example,*** Steve Jobs had the skill of presenting innovative ideas and made customers obsessed with design. This made Apple products a huge success. With an awareness of disruptive forces, quick decision making and ability to take risks can give the new entrepreneurs a very good start in their business.

In the modern digital environments, entrepreneurs need to learn to engage people beyond the enterprise at all stages. In a networking world, everyone from the CEO to lower level workers are only a digital invitation away. They take and make the product message viral in the hyper-connected world with huge customer base. ***For example,*** Facebook acquired the virtual reality start-up Oculus Rift for $2 billion. Oculus Rift was able to attract the attention of people with its VR products in such a way that Mark Zuckerberg mentions Oculus Rift as one of the next most important computing platforms.

Businesses in digital environment are based on customer experience and innovation. When everyone has a smartphone, it is important to be interesting and innovative to stand out in the crowd. Entrepreneurs have to think new business models and innovate around the existing marketing channels and HR norms.

For example, AirBnB and Dropbox were able to establish in the market because of their innovative business models. These entrepreneurs had the ability to quickly scale a product in creative ways, so they could succeed. They have to solve big problems in a very simple and intuitive manner.

For example, Amazon moved from selling books to marketing goods online, now trying delivery of products via drones. Innovation needs the capacity to recover quickly from difficulties or obstacles.

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MODEL ASSOCIATION BETWEEN WORKPLACE SPIRITUALITY AND STRESS

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ABSTRACT

Work and life are two essentials for human beings. Managing work life balance is all about how the values, ethics and moral principles are essential for sound decision making. In research, it was found that organizations do have values, ethics and moral principles; Since 1960s studies have proliferated (Lewis and Cooper, 2005, p. 9) on the linkages between work and family roles, originally concerned mainly with women and work–family stress. New concepts emerged, such as work–family conflict or interference, work–family accommodation, work–family compensation, work–family segmentation, work– family enrichment, work–family expansion etc.

Keywords: Spirituality, Stress, etc.

1. INTRODUCTION

Whether it is work deadlines, household responsibility, everyday hassles or major life events; they can cause stress. Although stress can be useful when a person needs to perform, enduring stress can have negative consequences. Research has shown that stress induces several bodily changes that prepare the body to react according to the demands of the situation (van Doornen, 2004). As shown by Tosevski and Milovancevic (2006) in their overview, a relationship has been established between chronic stress and the onset of several physical disorders and the worsening of already existing physical health issues. Since stress has become a prevalent concern in our modern society, it is important to further investigate how we can combat stress.

This research paper explores the relationship between stress and spirituality. The major emphasis is to identify whether spirituality can act as a tool to combat workplace stress. The research paper starts with the introduction of the concept followed by a brief review of literature, data analysis, results and conclusion. The objective of the paper is to find an association between workplace stress and spirituality.

2. A BRIEF REVIEW OF LITERATURE

Spirituality

According to Biberman, McKeage and Tischler (2002), Spiritual quotient is human beings' intelligence or capacity to link them closer to spiritual characteristics and manifestations such as compassion, meaning and purpose, consciousness (self-awareness), vision and values.50 Spiritual quotient motivates the people to balance their work and life. An employee with high spiritual quotient might serve in a selfless way. He imbibes values essential and practice it in day-to-day life, and encourages others to follow it. Spiritual quotient in an individual will help him to look beyond himself and support others. Individuals with spiritual quotient create a conducive environment.

People with spiritual values help organizations to serve better. Employees with set of values create a conducive environment in an organization. These values reflect in interaction, networking, understanding and interpersonal relationship. Addition of such traits supports in quality improvement and conducive environment. The value-added effect of employees supports to achieve the objectives and goal of an organization within a short period of time. Employees with such values and work-based training are considered as an asset of organization. Spiritually oriented employees come together with a common interest and possess similar ideologies at the workplace. These employees are empowered with spiritual practices such as yoga, meditation, pranayama; all these will have an impact on their attitudes, behavior and character.

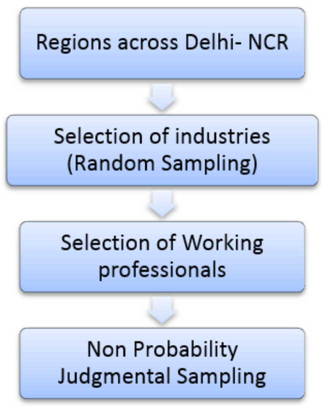
Theory of multiple intelligence given by Gardener reveals that there are many measurement criteria of human intelligence structure. Gardener (1993) believes that religiosity and spirituality are correlated. Emmons (2000) presented the proof of spiritual intelligence as spirituality which contains interconnected capacities. In his work, he projected spirituality as a category of intelligence. He also supports the fact that there is model of spiritual intelligence which consists of four components. It is now establishment of biological confirmation to support the theory that spiritual intelligence exists (Hammer 2005; Newberg and Walden, 2010). Long before this confirmation was given, Michael Persinger (1996) and Ramachandran (1999) discovered the presence of God Spot in brain. The 'God Spot' is a range in the mind that works as an in-built spiritual center positioned in the interior of the connections of neurons in the temporal lobes. This study leads to the conclusion that human beings are conditioned naturally by our brain to think spiritually. A large number of researchers believed in presence of spiritual intelligence. Mayer (2000) stressed that abstract reasoning and coping spiritually are encompassed in spiritual intelligence. The model of spiritual intelligence prescribed by Emmons was additionally supported and extended by Noble (2001). He explained the presence of diverse skills which are spiritual in precise. This also comes under the domain of spiritual intelligence. He mentioned the fact that his work agrees with Emmons (2000) tagging spiritual intelligence as an inborn human capability. Nobel further argues that spiritual intelligence continuously attempts to capture all the spiritual experiences throughout the life span of human psychological development. Further, Vaughan (2002) believes that spiritual intelligence is a talent for insightful understanding of existential concerns and questions. He also extended it to express multiple levels of consciousness- the awareness about our existence. Vaughan believed in existence of spiritual intelligence which is present in all human beings.

Stress

Stress is defined as an event or situation that is perceived as threatening, demanding or challenging (Hardie, Kashima & Pridmore 2005). Lazarus and Folkman (1984) define stress as any relationship between a person and their environment which is appraised as _taxing and endangers his or her wellbeing'. Theories of stress and health state that high stress leads to ill-being, especially where an individual lacks the coping resources or uses ineffective strategies to cope with stress (Hardie et al. 2005; Lazarus &Folkman 1984). In linking stress to wellbeing, Lazarus and Folkman (1984) postulated three phases of cognitive appraisal that occur during stressful situations, which have an impact on wellbeing; namely primary appraisal, secondary appraisal and reappraisal. Primary appraisal is the process whereby an individual perceives something as stressful, neutral or positive. Secondary appraisal involves the individual evaluating the stressful situation and deciding whether they have the coping resources to deal with the stressor. Reappraisal involves an altered perception about how stressful the situation is based on new information from the environment. An important aspect of Lazarus and Folkman's model is that perception of whether the stressor is negative, positive or neutral, is determined largely on the skills, needs and values of the particular individual. Some researchers have proposed a moderating model between individual spirituality (or religious spirituality), stress and wellbeing (see Calicchia& Graham 2006). Most authors argued for spirituality (or religious spirituality) moderation models based on the notion of spiritual appraisal and coping. For example, Calicchia and Graham (2006) reasoned that moderation analyses were appropriate based on the preceding research which demonstrated that the influence of stress on wellbeing was effected by internal person factors (such as intelligence, previous experience and coping strategies) and external factors (such as social support and occupation). Calicchia and Graham also cited Gall et al.'s (2005) spiritual appraisal model as reason to investigate moderation models. Their overall results suggested that spirituality had some ability in buffering stresses. Youngmee and Seidlitz (2002) investigated whether spirituality moderated the effect of stress on wellbeing and ill-being (positive and negative affect and physical adjustment) amongst college students. The authors demonstrated that spirituality buffered the adverse influence of stress on wellbeing and ill-being. Ellison (1991) investigated the role of religious spirituality in buffering the harmful effects of traumatic stress on wellbeing. This was based on a stress-buffering model of wellbeing, in which personal religious or spiritual involvement was proposed to help prevent the harmful impact of stress on wellbeing. The negative influence would be buffered by positive reappraisal of potentially stressful situations, making the stressor appear less stressful (Ellison 1991; Gall et al. 2005; Hebert et al. 2006). Alternatively, buffering would occur by helping an individual believe he or she had the capabilities to cope successfully (Ellison 1991; Gall et al. 2005; Hebert et al. 2006). Ellison ascertained that spiritual belief systems were directly related to wellbeing, while church attendance and organized religious factors led to wellbeing indirectly by strengthening religious beliefs. It was shown that religious beliefs (but not divine interaction) buffered the negative effects of trauma on wellbeing.

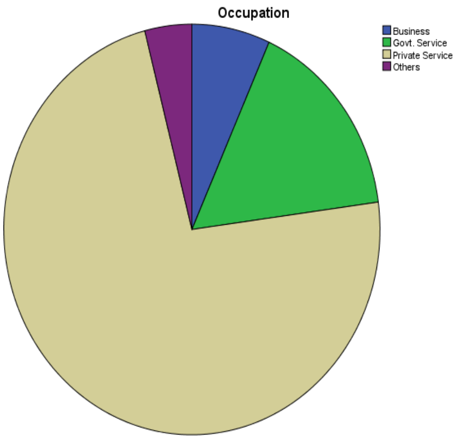
3. RESEARCH METHODOLOGY

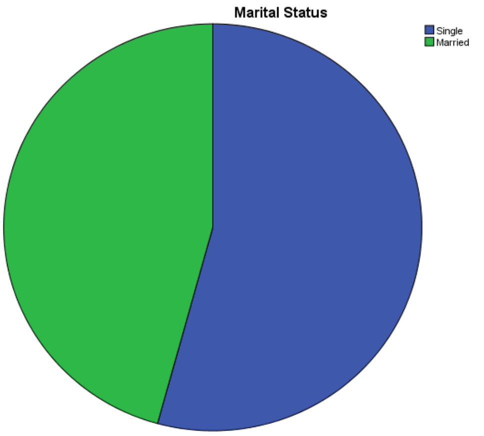
To our knowledge and on the basis of gaps identified in the literature, it is yet to be explore whether spirituality is to be correlated with workplace stress or not. The research study is based on primary data collection through the use of questionnaire. The sample size consists of 332 respondents (Lenth, 2001). The technique of data analysis is Spearman's correlation. The scope of the study is limited to Delhi- NCR. Respondents consist of working professionals of various industries in the region. The sampling scheme is as follows:

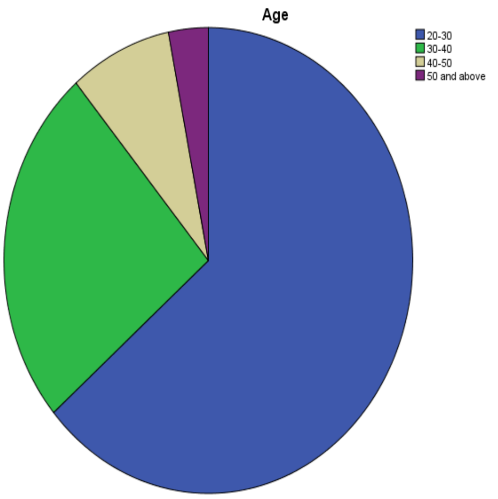


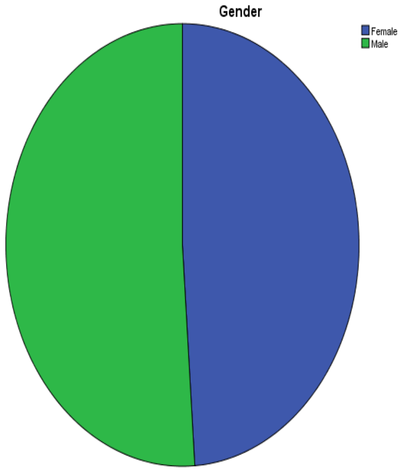
4. ANALYSIS AND DISCUSSION

Correlational analyses were performed to test if the main study variables were viable. Essentially correlation analysis is a statistical method of understanding whether and how variables are related to one another. Based on the result of correlation analysis, linear regression could be used to further investigate the subject. Graphs below provide the descriptive statistics for the main study variables prior to analyzing the data:









Based on the demographic analysis, correlation study was conducted to identify whether spirituality has association with workplace stress. It was found that spirituality has strong correlation with workplace stress. Various constructs of spirituality has average to strong correlation collective stress.

Spirituality constructs	**Stress Categories Collectively (R value)**
Purpose and meaning in life	0.421
Innerness or inner resources	0.573
Unifying interconnectedness	0.485
Transcendence	0.328

Therefore, it can be inferred that spirituality can reduce the amount of stress derived from workplace anxiety. Tools to inculcate spirituality should be implemented in order to boost employee performance. It is also interpreted that spirituality can also be inculcated as part of measurement criteria to measure workplace stress.

5. CONCLUSION

As spirituality is claimed to be a subjective concept (Giacalone&Jurkiewicz 2003), the use of only correlation analysis may have limited depth and quality of results in our study. Self-report measures were used for all the variables, and this may have created biases in the data (Dyer 2006). A multimethod approach combining qualitative and quantitative methods could be considered in future studies. Using a mixed methods approach may also could give the researcher comparable and complementary information about the participants' spirituality and stress at work (Murphy &Davidshofer 2001). The study was further limited by the small sample size which impaired the potential to establish causal relationships between spirituality at work and stress. A longitudinal study would also aid in determining the causal association between spirituality at work, job stress and wellbeing (Tabachnick&Fidell 2007).

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INTRODUCTION OF NEW AND INNOVATIVE HUMAN RESOURCES MANAGEMENT PRACTICES DUE TO COVID-19 PANDEMIC

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ABSTRACT

As we all know that due to pandemic, there are various changes in human resources management practices and out of them the one is Interview Methods. As we have observed before COVID-19 Pandemic, Companies indulged in traditional practices for interviewing people for job but this COVID-19 scenario boomed the use of modern practices such as virtual interviews. In this research paper, I will discuss the impact of COVID-19 on HR practices, the digitalization part related to interview methods, and the other new techniques which companies are adopting even after the COVID-19 Pandemic. Data for the study are drawn from secondary sources. The findings of this study suggest that COVID-19 has an enormous impact on conventional human resource management and requires the theoretical and empirical attention of researchers.

Keywords: COVID-19, Organizational Performance, Virtual Interview, Work from Home, Human Resource Management, Online Onboarding.

1. INTRODUCTION

Due to the unanticipated coronavirus disease, the entire world comes into the grip of quarantine commands. The COVID-19 Pandemic & Pivotal Medical seclusion extended period of mandatory quarantine led to an unprecedented global emergency. As per the Government guidelines we have to avoid physical contact with other people have created phobic among us. Covid-19 adversely affected every sector worldwide. The hospitality sector, tourism, transportation and retail sector along with many other sectors is adversely affected by Covid-19. This pandemic has hit global businesses heavily, disrupting the management of human resources across numerous industries.

Unlike crises in recent decades, the COVID-19 Pandemic brought about sudden decline in the sectors of the global economy, as well as affected all areas of human life. COVID-19 was unexpected and exposed both strengths and weaknesses of the organization. The crisis did not only challenge existing systems and processes, but also challenged all the assumptions that led to the development of existing management systems and processes. What led us to the present? Where do we go from here? The answer to this question by examining the history of the HR movement along with several external factors that have shaped current models of human resource management. These external factors include, but are not limited to, technological developments, trends in mass communications, globalization of the economy, research, cultural influences, the internet and social media, and emergency management. This article opens with a discussion on the history of Human Resource Management. The history also includes discussion on enabling technologies and discussion on emergency management and safety practices that were implemented in response to workplace disasters. The article concludes with practitioner recommendations for minimizing disruption to the organization's essential functions by unlinking the organization's dependence on physical structures, as appropriate.

Extraordinary changes caused by COVID-19 have enforced companies around the globe to accelerate transition to digital business processes. Human resource management (HRM) is in the heart of these transformations helping organizations to navigate in the vague present and unforeseeable future. HRM needs to manage people in companies during the crisis in order to enable business continuity and ensure work-life balance. Since the future will bring more flexible, remote-friendly, digital working norms, the changes in policies, processes, workspaces, collaboration systems, and employee wellness are of increasingly urgent importance.

Strategies implemented by governments, worldwide, to prevent the spread of the COVID-19 corona virus; have threatened businesses' survival on a global scale, unleashing an unprecedented economic crisis (Wenzel et al., 2020). As a result, companies must agilely adapt their management practices, so as to remain competitive, both during and after said financial crisis (Hong, 2020).

2. METHODOLOGY

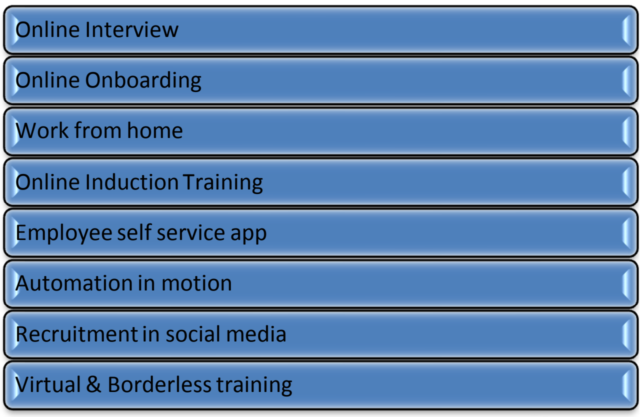
Data for this study were drawn from review of secondary sources. In this study, the systematic literature review has been done on emerging trends in the management field to explore new and innovative practices related to human resources which was used during the COVID-19 pandemic and some of the innovative practices and techniques are still in trend which were introduced at the time of pandemic.

3. OBJECTIVE

- To Analyze the new practices of HRM
- To investigate the impact of New Human Resource Management Practices after Covid 19

New Management Practices

During the pandemic various numbers of new techniques has been introduced for the interview process i.e online interview, online Onboarding, online training, work from home and many more which affected positively from the organizational point of view and after the pandemic also these practices are carried down by the companies. It has also changed the working culture of the organizations.



(*Source: Self*)

With the help of these practices, the flexibility enhances in the working culture of the organization which also affects the effectiveness of employees. It is related with the performance management of employees and managers should consider refining performance measures to achieve work objectives that can be effectively measured in the telecommuting environment. Our approach should consist of regular intervals of performance feedback so that the employee has a clear understanding of what is needed to reach the target level of performance. Managers and employees may need to be more creative in simulating the in-person work environment as much as possible. For example, virtual office technology such as videoconference can be used to replicate face-to-face interactions. Compensation and personal time off policies may also need to be revisited to ensure the compensation and performance indicators are aligned.

There are several areas where flexibilities in human resource management are needed. As we consider telecommuting there are some options to consider. While most telecommuting employees work from home, there are some who prefer to be in a professional setting so shared workspaces or office hubs might be a good solution if coming to an office environment is desired. There has been growing demand from employees to telecommute from locations other than their homes or officially sanctioned telework centers. After a prolonged pandemic, some employees have been experimenting with "workstations"—or telecommuting from different geographic regions, and in some cases from resorts and vacation properties. Managers will be faced with making policy decisions on where telecommuting to work can occur. Managers should also consider other flexibilities such as job sharing and gradual (or phased) retirements. Job sharing is a situation where two people work and share the pay of a single job. Job sharing can increase continuity of operations and provide the organization of the benefit of having two people performing the problem-solving requirements of a single job. This arrangement can also benefit the employees who may not desire fulltime employment due to personal needs. This could potentially improve employee morale and reduce absenteeism. Phased retirements can have benefits for both managers and employees. The organization has the benefit of retaining key workers and maintains continuity of essential business operations while preparing other employees to take over certain job functions. The employee has the benefit of not having to retire all at once but can experience work/life balance and plan for retirement while being able to adjust the desired date of full retirement.

4. CHANGES AFTER COVID-19

1. BCG (Kaufman et al, 2020)

- The future of work will be increasingly hybrid – a blend of onsite and remote locations
- Focusing on well-being and social connectivity to help employees to recover faster from traumatic, painful, and stressful period
- Make remote workers feel included in the company culture
- Focus on how to empower, engage, and make employees productive and support them the right IT tools at their disposal

2. (KPMG, 2019)

- The power of the next generation of HR is in creating a holistic and mutually reinforcing "whole system" approach to building the workforce (and organization) of the future
- It lies in an organization's ability to integrate new capabilities, taking a worker-centric view while addressing cultural shifts and embracing an increasingly digital workforce

3. McKinsey (Agrawal et al, 2020)

- Build a skill set that will help employees in key parts of your business respond well to changes

- Expand the ability to operate in a fully digital environment
- Develop cognitive skills to ensure that critical players can respond to the need for redesign and innovation
- Strengthen social and emotional skills to ensure effective collaboration
- Build adaptability and resilience skills to thrive during an evolving business situation

4. (McKinsey&Company, 2020)
- Filling most gaps will require a mix of approaches, such as hiring and reskilling;

5. (MetLife, 2020)
- Helping globally mobile employees succeed means understanding the unique challenges and stressors many of them face and offering solutions that can foster flexible work-life integration
- Globally mobile employees are struggling across every component of holistic well-being
- A holistic look at well-being includes four key components: • Mental health: Condition of psychological and emotional well-being
- Financial health: State of personal and family financial security
- Social health: Ability to form satisfying interpersonal relationships
- Physical health: Level of illness, injury and general lifestyle;

6. (2021 Global Marketing Trends, 2020)
- To build trust in these turbulent times, brands should look at what people value – rather than what they look like – and ensure their promises are in sync with their competence to deliver on them;

5. POST-COVID-19 IMPLICATIONS FOR HUMAN RESOURCE (HUMAN CAPITAL) MANAGEMENT

The advent of COVID-19 had negative impacts on all aspects of global societies. International cooperation of all business sectors has helped limit some of the potential impact of COVID-19 through the development of vaccines and occupational health and safety measures. Although the current COVID-19 crisis is not over, the human resource management practices, telecommunication technologies, emergency management practices, and supply chain innovations that were in place prior to COVID-19 greatly improved the world's chances of surviving the global pandemic. As organizations recover from the pandemic, focus will need to shift from the present state to the sustainable future of the workplace. As the pandemic restrictions subside managers will have to consider the likelihood that workplaces will not return to the 100% levels of onsite employees prior to COVID-19. There are many reasons for this depending on the point of view. In the case of management, some organizations have seen increases in employee productivity and accountability. Organizations are also discovering how to reduce overhead expenses by reducing physical workspaces and in turn saving millions in annual operating and maintenance of buildings and building services. While it is likely that some organizations may adopt of hybrid approach each organization will have to determine what works best. The decision to return to the physical workplace may happen incrementally or in phases. Employees may have both positive and negative views on returning to the physical workplace. Some may look forward to returning to the office as it is their belief that they are more productive in the physical workplace, while others may have anxiety and concerns about having to return to the workplace. Human resource managers and organizational leaders will have opportunities to improve working conditions and prepare for future disruptive events. The COVID-19 pandemic presented a once in a century crisis and points to a need for larger systemic changes. The changes should not only focus on responding to the next epidemic or workplace disruptor, but also preparing for a combination of potentially disrupting events. The focus should be on the continuity of the organization's essential functions regardless of the source of the threat.

6. RESTRUCTURING THE WORKPLACE

After a few months of remote work, many organizations realized that the physical space, offices, car parking are not needed anymore if employees decide to work from home. Those employees who will agree to work in the office will need specific circumstances to be safe, keeping distance and have possibility to open windows to ventilate. These departmental zones will form the foundation of a new "company ecosystem" — one that is more efficient, serves the unique needs of teams better and is far less costly to implement. Ultimately, this new approach will enable more effective teams and improve culture and engagement (Igloosoftware, 2020). Remote work can be structured so that employees split their time between home and the workplace, on alternate weeks and on a rotating schedule. It can include designated times for everyone to be physically present – for instance, there might be a good reason for everyone to be on site on e.g. on Monday of every month. Or a company could choose a "work-from-anywhere model" in which employees can work remotely all the time but still be able to visit any work location anytime if they wish to do so for the purpose of affiliation (Kaufman et al., 2020). Organizations need to re-write the rules concerning content and place of work to navigate the exponential change that appeared with COVID-19. Increasing sanitation and cleaning, implementing social distancing guidelines along with operational changes like decreasing business travel and reducing the use of common spaces like kitchens or recreation areas. These tasks are predominantly assigned to HR department in which 87% of HR professionals recently reported that their work has been crucial to their organization since the pandemic began and over half of them felt their work is more appreciated than before the pandemic

7. INCREASE VIRTUAL

Travel Organizations could eliminate some expenses by sending employees to virtual training and conferences. This could result in transportation and lodging expense savings, but also reduce lost work time due to travel. This approach could potentially broaden participation and allow more employees to take advantage of these opportunities where in the past employees had to compete for limited training and conference opportunities.

8. CONCLUSION

The main aim of this research is to analyse the impact of the COVID-19 Pandemic on human resource management strategies. If we are talking about the history of human resource management, it demonstrates that how organizations have adopted the practices to address the internal and external factors that have shaped organizational management approaches. The COVID-19 Crisis is a call to organizations to challenge current assumptions about mission fulfillment. The crisis is also a signal to HR managers and practitioners that agile and adaptive approaches will be needed to prepare for future challenges as the need to balance human needs with employee productivity goals.

Concluding the above research findings, it is obvious that COVID-19 as a global, external factor made the HR business practices introduce new rules, policies, tools to adjust employees to the new situation and still to continue business purposes. All the strategies and plans that were made even one year before pandemic, have to be revised, changed, reshaped. For several months various organizations have tested some solutions which might serve now as a benchmark for others and as a point of reference in restructuring their own HR policies

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PSYCHOLOGICAL EFFECTS OF GREEN - WASHING

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ABSTRACT

The purpose of this paper is to analyse the psychological impact of Green - washing effects and attitudes and beliefs about green product purchasing decisions. Our research shows that companies that overcommit or fail to deliver on promised socially responsible initiatives undermine customer relationships. However, a company's reputation for product quality and innovation can partially mitigate such negative impacts on customer satisfaction.

Keywords: Psychological Effects, Green-washing, Marketing, Consumer Perception, Green Business.

1. INTRODUCTION

Green - washing (a composite word modelled after "whitewash"), also known as "green sheen" (CBC Radio, 2011; Liberty Post, 2009), is a form of advertising or marketing spin using green PR. Yes, green marketing is misleadingly used to make the public believe that an organization's products, goals, and policies are environmentally friendly. Companies that consciously adopt Green - washing communication strategies often do so to distance themselves and their suppliers from environmental misconduct (Pizzetti et al., 2021).

Critics of the practice say the rise of Green - washing, coupled with ineffective regulation, is fuelling consumer scepticism about all green claims and persuading companies to adopt greener manufacturing processes and business practices. Suggesting that it weakens consumer power (Dahl, 2010). Many companies use Green - washing to improve public perception of their brand. Complex corporate structures can further blur the picture (Condon, 2022).

Without external oversight and verification, Green - washing strategies lead to corporate pomp and deception (Laufer, 2003). If companies decide to act responsibly and adopt a vision of sustainable development, they may need to make significant changes in their corporate culture to understand and embrace the concept. Integrating sustainable development into communications alone is not enough to convince consumers to purchase (Ullman, 2008).

Green - washing is nothing new, but has been strengthened in recent years to meet consumer demand for environmentally friendly goods and services. The problem is exacerbated by lax enforcement by regulators such as the US Federal Trade Commission, Canada's Competition Bureau, UK Advertising Practices Commission, and Advertising Practices Broadcasting Commission. New regulations and laws aim to discourage businesses from using Green - washing to mislead consumers (Webb, 2021).

2. BACKGROUND

Keep America Beautiful was a campaign founded in 1953 by beverage companies and others to forestall regulation of single - use containers (Throughline, 2020).

In the mid - 1960s, the environmental movement gained momentum. This has led many companies to create a new green image through advertising. Madison Jerry Mander, former advertising executive at his Avenue, called this new form of advertising "eco - pornography" (Black, 2008).

The first Earth Day was held on his April 22, 1970. This has led many industries to advertise being environmentally friendly. Utilities spent $300 million to promote themselves as clean green companies. This was eight times the amount they spent on research to reduce pollution (The Green Life Online, 2012; Corp Watch, 2001).

In 1985, Chevron Corporation launched one of its most famous Green - washing advertising campaigns. Chevron's "People Do" ad targeted a "hostile audience" of "socially conscious" people. Two years after the campaign began, his poll found that Californians trust Chevron more than other oil companies when it comes to protecting the environment. In the late 1980s, the American Chemical Society started a program called Responsible Care. The program focused on the group's members' environmental performance and precautionary measures. Lax due diligence guidelines have led the industry to favour self - regulation over government regulation (The Green Life Online, 2012; Corp Watch, 2001).

A 1991 study published in the Journal of Public Policy and

Marketing (American Marketing Association) found that 58% of environmental ads contained at least one misleading claim. Another survey found that 77% of respondents said that a company's reputation for being environmentally friendly influences whether they will buy its products.

A quarter of all household products sold before and after Earth Day was advertised as eco - friendly and eco - friendly. In 1998, the Federal Trade Commission created "Green Guidelines" to define terms used in environmental marketing. The following year, the FTC found that the Nuclear Energy Institute's environmental claims were untrue. The FTC did nothing about the allegations because they are outside its jurisdiction. This made the FTC realize it needed new, clear and enforceable standards. In 1999, the term "Green - washing" was added to the Oxford English Dictionary (The Green Life Online, 2012; Corp Watch, 2001).

A few days before his 1992 Earth Summit in Rio de Janeiro, Greenpeace published the Greenpeace Book on Green - washing. It detailed a corporate takeover at a United Nations conference and provided a case study on corporate polluters versus their rhetoric. An extended version of this report was published by Third World Network as Greenwash: The Reality behind Corporate Environmentalism.

In 2002, the Green - washing Academy hosted the Green - washing Academy Awards at the World Summit on Sustainable Development in Johannesburg. At the ceremony, companies such as BP, ExxonMobil and even the US government acknowledged Green - washing's lavish advertising and support for Green - washing (The Green Life Online, 2012; Corp Watch, 2001).

Social scientists have studied the claims and effects of Green - washing. In 2005, Ramus and Monteil conducted data analysis to reveal corporate commitments to implement environmental policies rather than Green - washing. They found that while companies in the oil and gas industry were more likely than companies in the service industry to implement environmental policies, they were less committed to reducing fossil fuels (Ramus & Montiel, 2016).

Green - washing practices influence stakeholder perceptions. The study found the impact on effective corporate social and environmental responsibility perceptions, following environmental scandals, severe distortions in market and economic systems, and increased information asymmetries between companies and stakeholders. Analysed the possible existence of deceptive practices and intentions to deceive (Torelli et al., 2019).

3. MAIN FOCUS OF THE CHAPTER

Psychological Effects of Green - washing

Green - washing is a relatively new area of research within psychology, and there has been little consensus in research on how Green - washing affects consumers and stakeholders. Due to country and regional differences in recently published research, discrepancies in consumer behaviour in research may be due to cultural or geographic differences.

Effect on consumer perception

Researchers have found that consumers prefer truly eco - friendly products to eco - friendly products (Lee et al., 2017). A Lending Tree study found that 55% of Americans are willing to spend more money on products they believe are more sustainable and environmentally friendly (Sherrier, 2022).

Consumer perceptions of greenwash are also influenced by the level of greenwash they are exposed to (Torelli et al., 2019). Other research shows that few consumers actually notice Green - washing, especially if the company or brand perceives it to be reputable. When consumers perceive green advertising as trustworthy, they have a more positive attitude towards brands, even if the advertising is greenwashed (Özsoy & Avcilar, 2016).

Other research suggests that consumers with more green concern are more able to tell the difference between honest green marketing and greenwashed advertising; the more green concern, the stronger the intention not to purchase from companies from which they perceive Green - washing advertising behaviour. When consumers use word - of - mouth to communicate about a product, green concern strengthens the negative relationship between the consumer`s intent to purchase and the perception of Green - washing (Zhang et al., 2018).

Research suggests that consumers distrust companies who greenwash because they view the act as deceptive. If consumers perceive that a company would realistically benefit from a green marketing claim being true, then it is more likely that the claim and the company will be seen as genuine (Foreh & Grier, 2003).

Consumers` willingness to purchase green decreases when they perceive the green attributes compromise the product quality, making Green - washing potentially risky, even when the consumer or stakeholder is not sceptical of the green messaging. Words and phrases often used in green messaging and Green - washing, such as "gentle", can lead consumers to believe the green product is less effective than a non - green option (Newman et al., 2014).

Attributions of Green - washing

Eco - labels can be given to a product both from an external organization and by the company itself, which has raised concerns because companies can label a product green or environmentally friendly by selectively disclosing positive attributes of the product while not disclosing environmental harms (Lyon & Montgomery, 2015). Consumers expect to see eco - labels from both internal and external sources but perceive labels from external sources to be more trustworthy. Researchers from the University of Twente found that uncertified or greenwashed internal eco - labels may still contribute to consumer perceptions of a responsible company, with consumers attributing internal motivation to a company's internal eco - labelling (Gosselt et al., 2019). Other research connecting attribution theory and Green - washing found that consumers often perceive green advertising as Green - washing when companies use green advertisements, attributing the green messaging to corporate self - interest. Green advertising can backfire, especially if the advertised environmental claims do not match the company's actual environmental commitments (Nyilasy et al., 2014).

Implications for green business

Researchers studying consumer perceptions, psychology, and Green - washing believe that companies need to "get on the road" in terms of green advertising and ecological behaviour in order to avoid negative connotations and perceptions of Green - washing. I discovered that there is Green marketing, environmental labelling, and advertising are most effective when aligned with a company's actual environmental commitments.

This is also communicated through the visibility of these environmental efforts. In other words, consumers cannot factor environmental performance into their evaluation of a company or product unless they are aware of the company's commitment to sustainability or green ethos (Berrone et al., 2017).

4. CONCLUSION

Excessive exposure to Green - washing can make consumers apathetic or negative about green marketing. A truly green company needs to do more to differentiate itself from those who make false claims. Consumers may also react negatively to genuine sustainability claims due to negative experiences with Green - washing (Szabo & Webster, 2020).

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ACCREDITATION FRAMEWORK AS PART OF NEW EDUCATION POLICY PARADIGM

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ABSTRACT

India is going through a rapid transformation in its higher education sector. Increasing number of Indian Higher Education Institutions (HEI) becoming part of the global ranking. As India's economy expands, it is imperative that, Indian HEIs play a supporting role. New Education Policy is proposed to act as an enabler in this endeavour. Accreditation process and outcome act as a third party due diligence of the quality of an academic program as well as the concerned academic institution. Accreditation process was started in the United Kingdom. Academic accreditation started in India in the pre-independence era. In the post economic liberalization era the pace of accreditation became faster.

Keywords: Higher Education Institutions, Global Ranking, Quality, Academic Program.

1. INTRODUCTION

Higher Education Institutions (HEI) has a long and chequered history in India. As early as 6th. century AD, India had thriving centres of higher learning like Taxila, Nalanda, Vikramsheela, Kanchipuram, Ujjaini etc.

In these institutions multi-disciplinary mode of education was common place as students had the options like Zoology, Music, Construction, Architecture, Astronomy, Mathematics, Vedas, Logic, Science, Business Studies to choose from. As India was home to quality higher educational institutions, quality is an inherent part of conscience for higher education stakeholders in India. The formal convention of quality started in India HEIs in 1929, when formally a Quality Assurance (QA) cell was set up in 1929 to monitor the programmes of Indian Council of Agricultural Research (ICAR). According to Mike (2003), at the global level the practice of accreditation found its first mention in the year 1832, when the University of Durham engaged experts from Oxford University to assure existing students, prospective students as well as public at large with respect to quality of its academic programmes. After that, globally HEIs have used external examiners to do accreditation of its academic programmes. These accreditations were initially informal, gradually they became formal structured systems. In the late 1800s accreditation agencies were setup to evaluate academic standards and admission procedures. Some of these agencies were in the UK like RICS (1868), IET (1871), and the USA like NEASC (1885), MSACS (1887).

2. EXCELLENCE IN THE CONTEXT OF HIGHER EDUCATION (HE)

Excellence in HEhave different connotations in different contexts. From a students' perspective, it may be in the realm of HEIs ranking and academic reputation, also increasingly the placement opportunity the institution provides. However, there is no uniform expectation. The term "Excellence" is frequently by international accreditation agencies to benchmark the level of process and service qualityfollowed by institutions for the satisfaction of stakeholders and success of students. Many international accreditationagencies have defined 'Excellence' as a tangible reality; a combination of inputs using quantitative and qualitative indicators and continual progress of improved outputs. Thought leaders like Brusoni et al. [2014] were of the opinion that curriculum quality, teaching-learning processes, tangible skill development, availability of relevant academic and research resources, level of research output, and employability of students, and finally level of students' learning outcomes and achievements as measures of excellence. The most important is "fitness of purpose"for all the stakeholders to define excellence (Fernandes and Singh, 2021). The internationalization of education and cross country movement of students, faculties and researchers have further put impetus in this process. Globally, the following two models are widely used to define excellence in HE:

- EFQM Excellence Model
- Baldrige Model

In India the accreditation and standardization process started with establishment of ICAR in 1929, in the post liberalization era NBA and NAAC was both setup in 1994. National Institutional Ranking Framework (NIRF) was started in 2015.

The National Education Policy 2020 (NEP 2020) has introduced a new paradigm for higher learning in India. It is designed such a that it has the authority to alter the way that education is provided in India. The implementation of the strategy requires the complete commitment of all stakeholders like HEIs, regulators, faculty body, non-faculty body, students. Strong methods, processes, and implementation mechanisms must be created to prevent policies from failing, according to research on policy implementation gaps.

NEP 2020 is widely applauded as a framework with solid visionthat showcases top-notch academic foresightedness. It seeks to fundamentally alter how education is delivered (disseminated) at all levels in a broad, progressive approach. Making a clear strategy for revolutionary changes and laying out strategies on how to implement them in priority order within a set time limit without losing the momentum obtained are challenging tasks. It would be necessary to rebuild the regulatory and governance framework first to support these monumental changes.

3. PROPOSED FRAMEWORK OF REGULATION

According to the NEP 2020, the Higher Education Council of India (HECI) will oversee all higher education institutions in India. HECI must have the following four components:

- National Higher Education Regulatory Council (NHERC): will operate as the mutual regulator for promoting the higher education sector
- Contains teacher in education but exclude medical and legal education.
- National Accreditation Council (NAC): create a meta-accreditingbody and supervise the ecosystem of Accrediting Institutions (AIs).
- Higher Education Grants Council (HEGC): will forward the funding and finance the universities and academics.
- General Education Council (GEC): will define the results that reflect the graduate qualities- for approaching the higher education programs. Further, it also reflects the National Higher Education Qualification Framework (NHEQF).
- The vertical is a single role and function in autonomy. Well, it's expected to have entities and use extensive technology to reduce the human interface and get the possible result and keep transparency. Also, the high standards for public probity depend upon transparent public disclosure.

NEP desires the implementation of a regulatory system that is "light yet strict" and conducive to business. Institutions of higher education must have the greatest degree of professional ethics (HEIs).

4. ASSESSMENT FRAMEWORK AS PER NEP

The creation of a single organisation to oversee higher education is encouraged by the National Education Strategy for 2020. The lone regulator, the National Higher Education Regulatory Authority (NHERA), intends to establish a "light but stringent" structure.

It ensures that institutions of higher education (HEIs) have the greatest standards of professional integrity by ensuring that they adhere to the global norms and best prectices. Accreditation is essential for ensuring that regulations are clear and effective. According to the National Education Policy (NEP), the accrediting process should emphasise excellent governance, basic institutional standards, and public self-disclosure. The National Accreditation Council, a "meta-accrediting" agency, would oversee it (NAC). Only institutions that satisfy the quality criteria will be granted a licence. The NAC will provide accreditation licences to institutions that satisfy specified criteria.

Accreditation is essential to ensuring the quality of higher education. By completely overhauling the existing regulatory structure, the NEP proposes a single regulator to regulate the whole higher education industry. This would include teacher education in addition to the general, professional, and vocational programmes, but exclude the medical and legal disciplines. The NAC will be responsible for ensuring the quality of the whole higher education system. As an impartial body, it will determine the criteria for all private and public HEIs. All institutions of higher education will receive accreditation based on the established standards, benchmarks, and procedures. Less emphasis will be placed on the process and the factors contributing to the results. In addition, accreditation will rely heavily on fundamental principles, open self-disclosure, strong governance, and positive outcomes.

According to the objectives of NEP 2020, there will be massive consolidation of HEIs to around 15,000 institutions with a concentration on interdisciplinary programmes, as interdisciplinary programs will act as hotbed of knowledge creation and new idea generation. A single meta-accreditation organisation will be responsible for establishing an ecosystem of autonomous accrediting institutions (AIs) that will certify higher education institutions under the jurisdiction of the National Accrediting Commission. As part of its responsibilities, it must assist, empower, and manage the AIs.

During the execution of NEP, HEIs as well as academic degree programs will work through progressive and game changing disruptive modifications. HEIs would seek certifications from Indian and global agencies while undergoing significant transformations. Like HEIs, the NAC, which will be managed by its AIs, in the process all the stakeholders will need to maintain adaptability, resilience, and agility to face newer unforeseen changes and challenges. In addition, this evolving ecosystem must ensure that the certification standards and regulatory framework are transparent and accessible to the public. To accomplish this, a brand-new, generic accreditation system that emphasises outcomes and takes into consideration the various types of HEIs must be developed.

Since NAAC has access to a large quantity of data, it has been able to develop metrics that serve as a benchmark for evaluating quality and more. With the new Education Policy 2020, the number of schools requiring evaluation or accreditation has occasionally increased. NAAC might take the initiative in this area and instruct other organisations on what to do.

The present system of reviewing and accrediting colleges by the NAAC is based on input-, process-, and outcome-based criteria. Additionally, the framework proposes to bring a major component of the NEP, i.e. outcome-based education (as measured by assurance of learning) as also a significant component.

In addition, the NEP mandates that all financial information on teaching and non-teaching employees, courses, and student results must be made available online and offline. 70% of NAAC evaluations are currently conducted online. The objective is to do as much as possible while interacting with others as little as possible. Since technology makes it simple to perform anything online, obtaining information is simple. Since NAAC grades are utilised, they attempt to improve or improve their appearance. The NAAC has extensive expertise in evaluating many institutions, including those for teacher training, engineering, medicine, and other technical disciplines.

People have been helped to grasp how unique India's higher education system is via varying institutional experiences. NAAC is in the process of accrediting open universities and dual-mode institutions as another means to ensure the quality of open and remote learning. Additionally, India's geographical variety has made it feasible to comprehend the vast array of difficulties related to higher education in the nation, including the distinctions between rural and urban areas, state dynamics, inter-state geopolitics, etc.

Higher education institutions may ascend the quality ladder with NAAC Assessment and Accreditation by incorporating the process of obtaining, maintaining, and sustaining excellence into their daily operations. NAAC has developed a variety of innovative methods for testing students to satisfy the sector's requirements and adapt to the ever-changing requirements of higher education. Widespread engagement from peers, strategic benchmarking, tactical piloting, and deployment has all contributed to an improvement in system transparency and confidence.

All of an institution's information should be posted online or on its website. None of the ranking systems visits the universities or colleges in person. Instead, they use publicly accessible information to determine their rankings. All public and private institutions should be held responsible and publish all important academic data online, just as NAAC does by making all data publicly available.

5. FUTURE DIRECTIONS

If a country wishes to join the worldwide system for assuring quality, evaluation and accreditation of higher education institutions must be conducted in a transparent and informed manner.

Independent Accrediting Institutions (AIs) must be established as the primary means of monitoring HEIs and their accreditation. According to NEP 2020, the organisation that accredits AIs should empower, assist, and handhold them to enable these HEIs to transform themselves.

The AIs should move beyond a regulatory role, don a role of facilitator and enabler. AIs should also try to create eco-systems where knowledge flows seamlessly from one stakeholder to other and the entire eco-system is enriched in the process.

This emerging paradigm should have the following salient features:

- The AIs should act as the anchor to create the ecosystem for HEIs that defines clear roles and responsibilities for the stakeholders and well-defined parameters for AIs to examine and facilitate the evaluation and accreditation of all HEIs and/or academic courses, hence, it encompasses all type of HEIs including the technicalHEIs.
- Establish the legislative framework necessary for the development of AIs, which will serve as the mechanism for AI accreditation. This would cover the selection criteria and registration procedures for AIs.
- Put the accreditation methods and standards in the public domain, as well as dos and don’ts for AIs. Greater information dissemination in the public domain will enhance transparency and efficiency of the system.
- Setting up a coordinated framework for the production of tools, instruments, and resources for examination and accreditation (depending upon the research and OBA, or outcome-based accreditation); training, mentorship, and incubation of the community of AIs and assessors; technology interventions; and outreach and awareness campaigns for higher education institutions and other stakeholders.
- Establish a procedure for monitoring and assessing that is dependable and objective.
- The AIs should be given complete autonomy to complete the A&A process on their own.
- To maintain a watchful eye on AIs now that their development has been standardised.
- Provides a forum for settling disagreements according to established procedures.
- Domain specific AI framework should be developed with an aspiration to take it global, so that in the days to come world’s top notch academic institutions crave for Indian accreditations.

6. CONCLUSION

NEP 2020 is undoubtedly creative and forward-looking. With this policy framework India introduced a paradigm to develop HEIs so that they become a major contributor to create a knowledge centric economy. It was well worth the 34-year wait for this development to occur (It is pertinent to note that the previous NEP was unveiled way back in 1986). If the policy is implemented as intended, higher education will undoubtedly undergo a much-required transformation.

Assessment and Accreditation, a component of the new strategy, offers a somewhat different perspective on the regulation of HEIs. This is consistent with the promise of the policy to push forward on three agendas: i.e. (i) perception of stakeholders about regulatory organisations, (ii)align regulatory framework with the emerging trend of how funding of HEI is taken care of, (iii) recognition ofincreasingly significant role of private sector HEIs. Therefore, the NEP, 2020 looks forward for a dramatic transformation in the way regulatory bodies operate through "light but tight regulation" and the necessity to limit "commercialization" by mandating thorough self-disclosure of arranging the capital, rules and ensure that the academic programmes delivereducational outcomes.

It is noteworthy that India does not have any accreditation framework as of now that can compete at the global level. The focus of the future policy makers should be on not only strengthening Indian HEIs, but also make AIs strong enough through evolving framework that HEIs across the globe crave to get accredited by Indian AIs. The emerging AIs should have robust capability to evaluate multi-disciplinary HEIs, so the entire higher education spectrum is moving towards creation and emergence of multi-disciplinary HEIs and centres of excellence.

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THE ART OF CORPORATE COMMUNICATION-EMPOWERING WORK EFFICIENCY IN AN ORGANISATION

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ABSTRACT

Communication is the act of transferring a communication through different media; it can be verbal or verbal, formal or non-formal so long as it transmits a study provoking an idea, gesture, action, etc.

Good communication is considered a learned skill. Utmost people are born with physical capability to talk, but we must learn to speak well and communicate effectively. Speaking, hearing, listeningetc. are our capabilities to understand verbal and verbal meanings for make the process more efficient and effective.

As stated above, corporate communication is a management function or department, like marketing, finance or operations, which is responsible for the execution of corporate strategy. It is also responsible for the development of messages that are required for variety of purposes which are meant to serve the internal and external affairs of an organisation.

It will not be incorrect to state that corporate communication is imperious to an organisation's growth and progress in today's time and arena. It plays a vital role in ensuring an organisation that stays in an ever-changing industry and maintains a credible character amongst media, clients and general public.

Keywords: Provoking, Corporate Communication, Imperious, Credible Character.

1. INTRODUCTION

Today, mostly all the organisations preserve a separate and developed corporate communications department. This department accomplishes various communication needs and strategies both internally and externally, media relations, crisis communication and internal communications within the organisations. The department is also responsible for the reputation of the organisation and its management, relationships with prospective and existing stakeholders including government affairs.

Corporate Communication builds strong business association which helps in competing with other challenging organisations. Above all corporate communication is essential to maintain internal and external co-ordination and it will help the company to protect their brand image.

The theoretical history of public relations initiated in North America and the United Kingdom before the global presence of technology and the internet. Since the 1950s numerous approaches and models of corporate communication have emerged therein.

Corporate communications must preserve an excellent reputation to confirm the organisation's continuous growth in future. Not only this, they must also safeguard the organisation has a promising impending in an ever-changing industry and remains credible amongst the general public, stakeholders, clients and media.

A great communications leader must always keep them aware of what's going on before the rest of the world does. They should be always on-the-go and always be accessible. This is a very important characteristic of a communicator.

Thus, corporate communication is important for a company because it is through communication that an organization makes contacts with its customers, suppliers and other elements both internal and external of the organization. On the other hand, corporate communication is very significant for a company to generate the best corporate reputation.

The Major Components of Corporate Communication

1- Internal Communication: Management should first consider people and structure. The main objective of their engrossment in the tasks they have undertaken, the proficiency with which they are carried out as it is a very vital parameter, bearing especially in mind that it requires management to work together in crews.

Internal communication is the transmission of information between organisational members or fragment of the organisation. It takes place across all organisational units of an organization.

It is important to boost worker's moral and activities everyday via corporate Communication.

A communicator should work like a bridge between the executives and the subordinates.

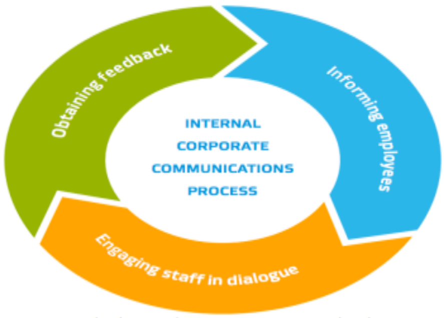

Figure 1: The Internal Corporate Communication Process ***Source: (Miller 2012)***

2- Media Relationship: A communicator needs to be at his best in his communication. when it comes to media relation. He is the representative on behalf of the whole company. So he needs to be composed and self-possessed&should state all positive angles of his company, not bring any negative aspects.

A communicator can take the media as his weapon to enhance the organisation's prosperity. But it can come back as worst position as ever.

3-Public Affairs: Public affairs are a term used to define an organisation's connection with stakeholders. Public affairs practitioners engage in order to explain organisational policies and views on public policy concerns.

They assist policy makers and policymakers in modifying better policies. So one must know all laws and the magnitudes at the local, municipal and centralized level.

4- External Relation: External communications are the procedures responsible for communicating with people and entities outside your association. These include customers, businesses, suppliers, partners, investors, administration agencies, and law enforcement. The main motto of a communicator is to create a positive public image for a company or entity. If the company's image is down, no bondholder or nominee would come to invest. One needs to hold old investors and persuade other new investors to invest.

Otherwise, company's future is at palisade. Shareholders should not sell his segments which could be a loss for the establishment. So, if there is any complex situation, a communicator needs to secure his company's strength. A good communication skill is required to perform these duties.

2. THE NEED OF CORPORATE COMMUNICATION IN THE RECENT TIME

An organization that focuses on enlightening its corporate communications, can expect a variety of assistances such as less employee turnover, consistent brand messaging, higher quality customer reviews, and closing the gap between internal and external adherents.

The future of corporate communications will be more embattled, collaborating, operative, and enlightening.

Here are some other reasons to focus on corporate communications:

1-Brand Awareness- Earlier, establishments used to rely principally on advertising for promoting trademarkcognizance. However, the advertising industry has been dwindling over the previous few years. Higher brand awareness transforms into more leads and higher profits. Therefore, corporate communication has a clear and direct influence on your company's financial growth &development.

2-Employee Engagement -90% of executive leaders know for a fact that employee engagement is a dynamic element in business success.

The validation is really quite and simple: someone who enjoys their job is apparently going to work tougher, perform better and stay extensive. Additionally, they will encourage and inspire their generations to do the same.

3-Facilitate Innovation and Creativity -Innovation isn't really a catchword anymore. Companies that don't modernise in the 21st century either go out of commercial or always fight to make revenues. The more is the innovations and creativity, the more enhanced the brand name of the organisation is at the particular time and phase.

4-Employee Productivity - Productivity is almost getting more finished in a reduced amount of time. The more productive your societies are, the higher your revenue engendered/employee and the lower the cost/employee.

5-Attracting Top Talent -Companies are only as prosperous as the individuals, who work there. But fascinating top talent is an exclusive and in-efficientprogression.

Corporate communication can help you draw better ability and do it quicker and less affluently. Here's how: -

- Referrals from engaged employees
- Brand Ambassadors
- Showcasing your company culture.
- Human Acquisitions.

3. INTERESTING FACTS ABOUT CORPORATE COMMUNICATIONS

- 60% of companies don't have a long-term strategy for their internal communications. (Workforce)
- 74% of employees feel they are missing out on company information and news. (Trade Press Services)
- 72% of employees don't have a full understanding of the company's strategy. (IBM)
- Only 23% of executives say that their companies are excellent at aligning employees' goals with corporate

purposes. (Deloitte)
- More informed employees outperform their peers by 77%. (Gartner)
- Organizations with effective change and communication programs are 3.5 times more likely to outperform their aristocrats. (ThinkTalent)
- Only 9% of communications leaders feel confident in their ability to shape corporate culture. (Gartner)
- Communicating strategy, values and purposes was listed as a key priority by 64% of correspondents. (Gatehouse)
- 46% of communications leaders consider audience information overload a key challenge. (Gartner)
- 93% of employees believe that video has become a vital part of internal communication. (Engine Creative)

4. PROBLEM STATEMENT

As per the analysis the differences in language, it createsmisunderstanding and difficulty in communicating between the internal and external stakeholders, partners and members. Communication barriers had become a severe issue in this day and age. Is the problem of communication barriers caused by companies are lack of observations towards the roles of the corporate communication and corporate reputation?

Therefore, the specific questions below have to be considered, to find out the perceptions of the company towards the roles of corporate communication and the role of corporate communication preparation in corporate repute.

5. OBJECTIVE OF THE STUDY

Corporate communications convey the company's plannedcommunication to all its audiences: customers and potential organizations, shareholders, employees and regulators. Corporate communications performance requires assessment; thus, intentions are transcribed so that success or failure can be dignified.

Enhanced Awareness

Corporate communications departments normally set an intention that sets around improving awareness among various listeners of a product or organizational situation.

Goal-Oriented Action

Knowledge of a product or issue alone doesn't move people toward the company's assignment. Corporate communications departments also must set goals around behaviours, appointment or conclusions.

Budget-Oriented Objectives

Corporate communication department has no direct involvement in cost and revenue-oriented goals and objectives. However, some of its intentions might have a shortestassembly with the financials. For example, the management might be fully interested to boost sales volume without hiring the sales staff or any other resources as necessary.

Motivating People/Audiences

When communication is prepared with the right annexation of emotional intelligence, it authorizes the audiences to opt for a higher level of enactment in a dedicated and passionate manner.

Promoting The Brand, Product or Service

Publicity, promotion, marketing, public relations, product releases, customer learning, etc. are the parts of the advancement strategy, and communication plays the most substantial role in channelizing all the happenings.

6. CONCLUSION

Corporate Communications involve both internal and external statistics that the company's management reports to its employees, target audiences, and partners. This system of information drift is aimed at creating the image and brand value of the company in order to achieve the uniformity of its actions, explaining its aims, purposes and goals. Formulating values and ideas as a comprehensible concept, and reflecting the company's ethical standards, Corporate Communications is rather imperative for every syndicate due to the fact that they determine how the public recognizes the company.

It is especially significant to note crisis communication, when it is necessary to ensure that every employee not only performs his or her character but may also act independently, paying attention to the overall condition and potential problems. Corporate Communications connect all departments of the company through all levels, thus creating a sense of reliability.

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THE BLUE BRAIN: AN EDGE-EXTENDING TECHNOLOGY

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ABSTRACT

When we talk about the most beautiful and unique incarnations of God, firstly comes the image of human beings. And, it is their brain and intelligence that makes them differentiated from all other species of organisms. Now the computer scientists are working on the Blue Brain Project in order to create a virtual brain that can control, configure and coordinate the human brain.

Even after the death of a person, his intelligence and knowledge will not go in vain and will be utilized further if this technology gets successful. This phenomenal feature of the project makes it edge-extending research.

Keywords: Nanobots, Blue Gene, Virtual brain, RT_Neuron, Sensory System.

1. INTRODUCTION

The Blue Brain Project is proposed in order to create a virtual brain. It is a type of supercomputer which aims at uploading a human brain onto a machine, simulating it and making memories without any effort. This will be the world's first virtual Brain.

The Project was initiated by Henry Markham at EPFL (Ecole Polytechnique Fédérale de Lausanne), A Swiss organization in Lausanne, Switzerland.

2. BLUE BRAIN VISUALIZATION

The Blue Brain Project uses system-on-a-chip technology of the Blue Gene/L generation of supercomputer which leads to gain a speed of 478 trillion calculations per second approximately 478 Tera-flops It is the world's first and fastest computer at Lawrence Livermore National laboratory in California.

3. EVOLUTION OF BLUE BRAIN

The evolution of the blue brain began in an earlier age of artificial intelligence development. Artificial intelligence as the name suggests is a man-made technology that results in intelligent outcomes the same as a natural smartness or man can do. Let me elaborate it with an example: The Computer Science Engineers have created many AI based robots. They feed their memory about some particular tasks by deep learning and then test whether they perform the same as humans or not. This is how they deal with machines to make them Intelligent. After that comes the step-by-step development.

4. MECHANISM OF THE BLUE BRAIN

The mechanism of the Blue Brain is to upload the information from the human brain to the super computer. To perform this, a very small robot is used which is called a "Nanobot".

5. BLUE BRAIN NANOBOT

The nanobots are so small that they can even enter the Spinal cord and central nervous system of the human body. Once they enter into the brain, quickly start monitoring the structure of the neurons by scanning them. And after this comes the need of connection between computers and information of the brain. The interface for establishment of this connection is nanobot itself and "BBP-SDK" software development kit is also used which is written in C++ library wrapped in Java and Python languages.

The data or information scanned by nanobots is further collected using BBP-SDK software and for visualization of that data , another software "RT-Neuron" is used. The RT Neuron software was purely written in C++. The main reason for designing it was to have 3D visualization of neuron simulation.

Other requirements of the Project:

- A Super computer
- Memory with a very large storing capacity
- Processor with a very high processing power.
- A very wide network.
- A program to convert the electric impulses from the brain to input signal, which is to be received by the computer and vice versa.
- Very powerful Nanobots[6].

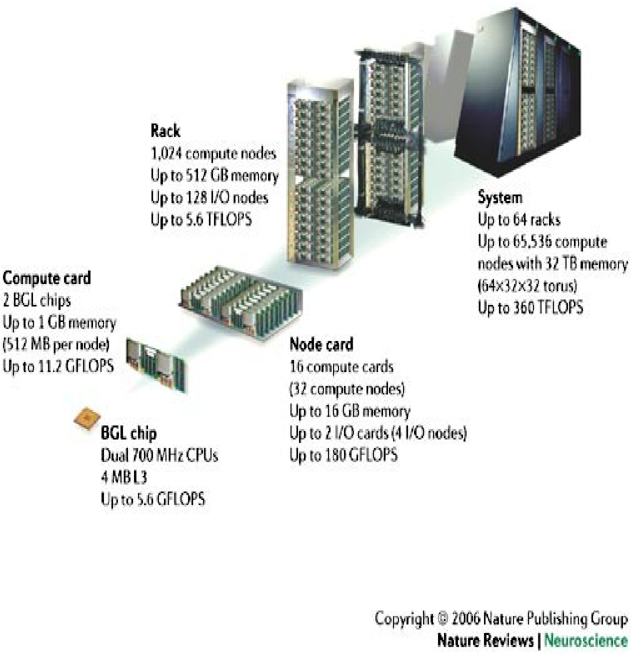
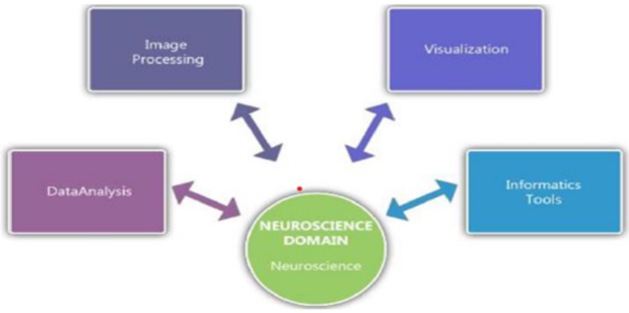


Image of Blue Brain Apparatus

Some other supporting technologies of this project are there. Like basic requirements of power, speed of performance, storage etc are crucial tasks to accomplish. The supercomputer of IBM named as Blue Gene is a major support system for the project. Blue Gene runs software developed by Michael Hines's and John Moore named "NEURON"

6. WORKING STRATEGY OF BLUE BRAIN



7. FUNCTIONAL BLOCK DIAGRAM OF BLUE BRAIN

Structural data that is to be gathered includes data on the genome, the transcriptome, proteins, metabolites, organelles, neurons and glial cells, synapses, extracellular space, microcircuits, meso-circuits, macro-circuits, the vasculature, blood, the blood brain barrier, ventricles, cerebrospinal fluid, and large-scale organization of the whole brain.

Required functional information includes data on gene transcription, protein translation, cell biology processes, signaling, receptor functions, biochemical, biophysical and electrochemical processes and properties, neuronal and synaptic information processing, information processing at the micro- meso- and macro circuit level and at the level of the whole brain, metabolism, development, adaptation, learning, perception, cognition, and behavior.

One of the project's key strategies is to exploit interdependencies in the experimental data to build the comprehensive digital reconstructions of the brain, including features that have yet to be characterized experimentally. The BBP has applied this strategy in several different areas (prediction of the spatial distribution of ion channels in 3D model neurons, prediction of neuronal firing properties from expression data for a selected set of ion channels, prediction of synaptic connectivity from neuronal morphology). In future work, the project plans to extend its use to new domains, including the prediction of structural and functional features of the human, from sparse human data augmented with data collected in rodents.

Examples include the equations used to describe the functioning of individual ion channels (based on the Hodgkin-Huxley phenomenological model) and flows of electric current along neuronal fibers (based on discretized versions of classical cable equations). Raymond Kurzweil recently provided an interesting paper on this topic. In it, he describes both invasive and noninvasive techniques. The most promising is the use of very small robots, or nanobots. These robots will be small enough to travel throughout our circulatory systems. Traveling into the spine and brain, they will be able to monitor the activity and structure of our central nervous system. They will be able to provide an interface with computers that is as close as our mind can be while we still reside in our biological form.

Nanobots could also carefully scan the structure of our brain, providing a complete readout of the connections between each neuron. They would also record the current state of the brain. This information, when entered into a computer, could then continue to function as us. All that is required is a computer with large enough storage space and processing power [4].

8. TRUE BRAIN VERSUS BLUE BRAIN

The following table clearly describes the major differences between natural brain and simulated brain:

NATURAL BRAIN	SIMULATED BRAIN
1. INPUT The neurons are responsible for the passing of messages. The sensory cells receive input and produce electrical impulses which in turn are received by the neurons. Finally, the neurons then propagate these electric impulses to brain and the cycle repeats itself.	1.INPUT The same electric impulses from the sensory cells are received from the by the artificial neurons (created by scientists using silicon chips) and sent to a super computer for the interpretation.
2.INTERPRETATION The interpretation of the electric impulses received by the brain from neurons is accomplished by the means of certain states of many neurons.	2. INTERPRETATION The electric impulses received by the artificial neuron are interpreted by means of a set of registers. Different states of the brain are represented by different register values.
3. OUTPUT On the basis of the neuron states, electric impulses are sent by the brain to represent all the responses which are further received by sensory cell of our body to respond.	3. OUTPUT Similarly, based on the states of the register the output signal can be given to artificial neurons implanted in the body which will be received by the sensory cell.
4. MEMORY. There are few neurons in our brain which represent certain states permanently. The interpreting of these states when required is done by the brain for us to remember the past things. To remember, the neurons are forced to represent certain states of the brain permanently.	4. MEMORY It is possible to store data permanently by using the secondary memory. Similarly, the required states of the registers can be stored there permanently and this information can be retrieved and used whenever required.
5. PROCESSING When we take decision, think about something, or make any computational, logical or arithmetic calculations, our neural circuitry is used.	5. PROCESSING In a similar way, the decision making is feasibly done by the computer by using certain stored states and the received input & by computing certain some arithmetic and logical calculations.

Table to compare natural brain with virtual brain

9. THE APPLICATIONS AND LIMITATIONS OF BLUE BRAIN

As we have already discussed the evolution and work mechanism of the blue brain project and have seen the supporting technologies also which are involved in this project in the above section. Now, it's the time have look upon the major areas of its applications and also the limitations of this technology:

Applications

- A Global Facility.
- Used for Cracking the Neural Codes.
- For gathering and testing more than 100 years of Data.
- For understanding Neocortical Information processing.
- A Foundational base for Molecular Modeling of the Human Brain Functioning.
- Can be used as a foundational tool for whole brain simulations.
- Can bring drastic changes in Medical Science for Drug Discoveries mainly for the Brain disorders.

Limitations

- It increases the risk on human's dependency on the machine every time.
- The stored information can be misused for various reasons.
- There is a major risk of human cloning.
- As we are about to make machines more intelligent than men, there is the possibility of a war between Man and Machine.
- The project is very costly and power consumption will also be a disturbing issue.
- More involvement with machines will lead to more health issues for human beings.

10. CONCLUSION

The main objective behind the Blue Brain invention is to establish a connection between human brian and artificial brain. It will be used for downloading the natural knowledge, memories, emotions and feelings of the human mind by applying complex computational algorithms with the involvement of a super computer and large storage spaces.

This stored information can further be used forever for various purposes until deleted. The Blue Brain can also be used in the treatment of neural diseases like Alzheimer's and Parkinson's disease. In a whole we can say that this technology will bring a bang in computer science. But as every coin has two phases, this also will have some good and some bad impacts on us.

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IDENTIFYING AMBIGUITY IN WEB QUERIES BY AUTOMATED WORD SENSE DISAMBIGUATION (WSD) ALGORITHM

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ABSTRACT

The task of information retrieval is often affected by the ambiguity of keywords. Researches in past few years have justified that the performance of the web mining can be improved by taking care of sense ambiguity problem. The queries with ambiguous terms may often result in low relevancy of results. The searching experiments with a number of search engines however revealed that some times even when the query consists of ambiguous terms, the relevancy level of the results remains quite high. This suggests that the search results may not always be affected by the query ambiguity. It is therefore realized that an automatic ambiguity detection algorithm in web queries would be a desirable step prior to disambiguation. The paper discusses an ambiguity detection approach for web queries using Google search engine. We tested around 100 web queries in English comprising at least one ambiguous word in each. The results show that all those queries for which retrieval relevancy have been high, were not detected ambiguous by the algorithm.

***Keywords: Word Sense Disambiguation, Sense Ambiguity, Information Retrieval*.**

1. INTRODUCTION

One of the most common problems encountered by any natural language processing (NLP) task is of ambiguity. The inability to resolve the problem of lexical ambiguity [1] is one explanation for the poor performance of the NLP based systems like information retrieval (IR). The disambiguation process, which helps people identify the correct sense of a word is not difficult for human being. We can perform it easily and accurately. However, this process is not so easy for computer applications. Given a text including an ambiguous word like "crane", without performing some sort of disambiguation, it becomes very difficult for a machine to know whether it refers to *a machine that lifts and moves heavy objects* or *the large long-necked wading bird of marshes and plains in many parts of the world*. Unfortunately, even after disambiguation of words, machines are often not able to resolve ambiguities. The task of an automated word sense disambiguation (WSD) algorithm is expected to make machines perform disambiguation similar to humans. The ambiguity removal is a difficult task for the computer systems and so it's detection. a web query is ambiguous or not actually depends upon the results that are generated by the query.

The ambiguity detection is important for an automated word sense disambiguation system. Especially in the case of web IR because the contents of web are dynamic in nature and due to this, a query which may at one time retrieves ambiguous results might retrieve unambiguous result in the next search. This perspective originates the concept of real time ambiguity detection for each query.

2. RELATED LITERATURE

Various researchers have studied the effect of ambiguity problem on performance of information retrieval task. According to Sanderson short queries are mostly benefited from the ambiguity resolution[2]. His study showed that disambiguation lead to better performance. Lesk [3] proposed the algorithm for WSD, and also implemented his algorithm on the short text sample and found good results. With the quite similar approach Pushpak Bhattacharya [4] used his algorithm for the Hindi languaage WSD. His algorithm does not detect the ambiguity in the queries. Krovetz and Croft [5] studied the relationship between sense mismatch and irrelevant documents. They concluded that the co-occurrence of multiple words interacting within a query naturally performs some element of disambiguation indicating that disambiguation might only be of benefit over short queries. Weiss [6] showed that ambiguity resolution only lead to the 1% increase in accuracy. Vogel and Kochher [7] also focused their approach on short sample queries. They suggested disambiguating only those queries where ambiguity is detected. They applied their approach on English queries. Besides that various other researchers have also used web documents for the disambiguation approach such as Gaona et. al.[8], Katsiouli and Kalamboukis [9]. The similar kind of work is performed by Navigili and Crisafulli[10] to improve the web search results. Their work however faces the problem of higher computational cost. In some works, information on collocations and syntactic relations is additionally used to resolve the lexical ambiguity. For example, Yarowsky[11] established that for identical combination of two words, the probability that the corresponding words are used in the same senses remains very high. This means that the corresponding words in identical collocations must have the same sense. W Gale et.al.[12] improved precision of their method from 86 to 90% by extending context consisting of 12 words in the neighborhood of the target words to that of 100 words. The use of context determined by the knowledge domain can considerably improve precision of WSD methods in some specific applications. A good example of this is a system SHRDLU[].

These researches deal with the disambiguation of queries and text. Very less work have been cited on suing algorithm for ambiguity detection on to web queries. The approach discussed in the next section describes the detection of ambiguity in queries where ambiguity is high.

3. AMBIGUITY DETECTION

The existing Word sense disambiguation tools which map words to their synset automatically can be influenced by motivation to detect the level of ambiguity for each query term. According to our approach if the ambiguity passes a threshold, the query is considered as an ambiguous query. The approach detects the ambiguity on the basis of top k relevant documents returned by the query. This approach is formulated as follows –

The focus of the ambiguity detection method is to measure the ambiguity of a query term q_i from a query Q. In general WSD algorithms use probabilistic approach where each sense is tagged with some probability of being correct. The low probability tagging is likely to be ambiguous. Since our approach is applicable for the information retrieval setup we define the ambiguity of the query in relation to the top k relevant documents for the query. The ambiguity detection is the better option than leading to the disambiguation error. Following this motivation, the ambiguity of a query term is defined as a function of the senses it takes in the relevant documents. For a query term q_i and a set of k (top ten documents) relevant documents D_k where q_i takes n senses in D_k. They define a maximum likelihood probability distribution p_{qi} over each sense as follows:

$$p_{qi}\left(s \mid D_k\right) = \frac{C\left(s, q_i, D_k\right)}{\sum_{j=1}^{n} C\left(s_j, q_i, D_k\right)} \quad (1)$$

Here we define $C(s, q_i, D_k)$ as the number of times term q_i takes sense s in the set of documents D_k. From this probabilistic sense distribution, we define the ambiguity of a query term as the entropy of its sense distribution. Entropy is the numeric measure of the uncertainty of the outcome. Higher the entropy will be higher will be the degree of uncertainty.

$$A\left(q_i, D_k\right) = -\sum_{j=1}^{n} p_{qi}\left(S_j \mid D_k\right) \log p_{qi}\left(s_j \mid D_k\right) \quad (2)$$

Finally to detect the ambiguity in the query, threshold θq is calculated. Threshold is calculated on the basis of entropy of the sense distribution like this:

$$\theta_{qi} = -\sum_{j=1}^{n} p_n\left(s_j\right) \log p_n\left(s_j\right) \quad (3)$$

If the value of entropy is greater than threshold or we can say entropy passes a threshold, the query will be an ambiguous one. Entropy is the degree of uncertainty, so higher the entropy means higher will be the possibility of ambiguity level of the query. Threshold is the value that shows the change in state (ambiguous / unambiguous). Hence if the entropy is greater then threshold the query is ambiguous otherwise it is unambiguous. Table 1 shows a set of 25 ambiguous queries with their possible fine-grained senses.

Table 1: Set of ambiguous queries with their possible senses

Query	Query Term	Senses
Plants of India	Plants	Power plant, flora
	India	Country
Flying a plane	Flying	To fly
	Plane	Airplane, sheet
Free atom	Free	Liberty
	Atom	Chemical substance, material
Conference chair	Conference	Meeting
	chair	president, seat
Current affairs	Current	Present, electric current
	Affairs	Social event, transaction
Capital tours	Capital	Uppercase, assets

Query	Query Term	Senses
	tours	Journey, shift
Bat house	bat	Mammal, racket
	house	home, community
Laws of motion	laws	Rule, concept
	motion	Movement, change
Wall paint	wall	Partition
	paint	Art, wallcoverings
Railway platform	railway	track
	platform	Railway, political
Astrology sign	Astrology	Horoscopy
	sign	Mark, zodiac
Major accident	major	Army Officer, greater
	accident	Injury, incident
Interest on loan	interest	Curiosity, simple interest,
	loan	Debit
Bank of river	bank	Financial institution, riverside
	river	River
Figure of speech	figure	Diagram, digits
	speech	Lecture, communication
Human right	human	People
	right	Correct, law
Program bug	program	Software, show
	bug	Insect, error
Length of pitch	length	Length
	pitch	Game pitch, sound pitch
Park in India	park	Industrial park, national park
	India	Country
Temperature is cold	temperature	Weather
	cold	Disease, weather
Balance of equilibrium	balance	Remaining
	equilibrium	state
James river	James	Person, name of river
	River	river
Space person	Space	Gap, universe
	Person	person
Core of earth	Core	Centre, set
	Earth	earth
Capital money	capital	Assets, uppercase
	money	money

4. QUANTITATIVE EVALUATION

Quantitative evaluation of the queries is done on the basis of the above mentioned formula for entropy and threshold.

A set of 100 queries have been taken to evaluate this approach. The query set is prepared on the patterns of TREC queries as well as query log of the Google search engine. To compute the value of entropy and threshold for each query, a Google search is performed for each query to collect the snippets of top 10 retrievals. Each snippet is matched with the training corpus which is based on Word Net[13]. The training corpus helps knowing to which sense of the query each snippet belongs.

For an example, the query "Plants of India" on Google result into 5 relevant documents out of top 10 documents. After elimination of "of" we left out with the two terms:

- q_1 = "plants" has 2 sense according to English WordNet
- q_2 = India has one sense according to English WordNet

The value of probability distribution for "India" will be one and Entropy will be 0, hence threshold cannot be calculated. The probability distribution of all the senses of query term q1 according to equation 1 is as follows:

- s_1 (industrial plant) = 0.60
- s_2 (flora) = 0.40

Entropy is calculated according to the Eq. 2 and the value is 0.2888. Threshold is calculated on the basis of Entropy and it is .2432. The value of Entropy is greater then the value of Threshold which shows that the uncertainty of the outcome passes the threshold. This concludes that this query is ambiguous.

Taking another example query:

"*Flying a plane*"

Query "Flying a plane" on Google result into 10 relevant documents out of top 10 documents.

After elimination of "a" we left out with the two terms:

- q_1 = "flying" has one sense according to Word Net
- q_2 = "plane" has two sense according to Word Net

The value of probability distribution for "Flying" will be one and Entropy will be 0, hence threshold cannot be calculated. The probability distribution of all the senses of query term q2 according to equation 1 is as follows:

- s_1 (aeroplane) = 1.0
- s_2 (sheet) = 0.00

Entropy is calculated according to the Eq. 2 and the value is 0. The threshold cannot be calculated as it is based on the Entropy value. This concludes that this query is unambiguous.

Another example query "capital money" returns all top ten results relevant Hence the precision is 1.0 therefore the query is unambiguous even though it consists of ambiguous term "capital".

5. RESULTS

As discussed in the previous section, the queries are tested for the ambiguity detection method using especially designed 100 web queries. Table 2 shows the results of 25 queries wherein entropy and threshold values are shown for each of these queries. From the results it is clearly evident that ambiguity detection is quiet important before its disambiguation. The data in Table 3 clearly shows that out of the 100 queries tested on Google, the 40% queries are found unambiguous even though they consist of ambiguous words in them. Our approach successfully identifies the ambiguity in the queries which can be passed further for disambiguate. In order to check whether our algorithm detects ambiguity correctly, we selected all ambiguous queries as identified by the detection algorithm and computed precision (p@10) value of each query manually using google search. We found that the precision (and the mean average precision) of these ambiguous queries are very low as compared to those queries which have been detected unambiguous (table 4). This clearly shows that the ambiguity detection method successfully identifies the ambiguity in queries. A WSD technique may be applied only on to these ambiguous queries without being applied to all queries in the query set and thus by saving the computational time. Thus an early detection of the ambiguity in the queries will save the computational power of the system. Table 2 shows the entropy and threshold value for few sample queries.

Table 2: Set of Sample Queries with their Entropy and Threshold values

Query	Entropy	Threshold	Result
Plants of India	0.288	.2432	ambiguous
Flying a plane	0.000	NA	
Free atom	0.205	0.20185	ambiguous
Conference chair	0.444	0.36648	ambiguous
Current Affairs	0.312	0.2496	ambiguous
Capital tours	0.288	0.24168	ambiguous
Bat house	0.294	0.2434	ambiguous
Laws of motion	0.361	0.370	
Wall paint	0.2328	0.2100048	ambiguous
Railway platform	0.132	0.1184	ambiguous
Astrology sign	0.0768	0.08524	
Major accident	0.312	0.2496	ambiguous
Interest on loan	0.136	0.1456	
Bank of river	0.288	0.24168	ambiguous
Figure of speech	0.306	0.2478	ambiguous
Human right	0.136	0.1456	
Program bug	0.0768	0.0852	
Length of pitch	0.306	0.2478	ambiguous
Park in India	0.312	0.2496	ambiguous
Temperature is cold	0.288	0.2416	ambiguous
Balance of equilibrium	0.0768	0.0852	
James river	0.261	0.223	ambiguous
Space person	0.0768	0.08524	
qCore of earth	0.136	0.1456	
Capital money	0.000	NA	

Table 3. Overall results

Total Queries	Ambiguous	Unambiguous
25	60% (15)	40%(10)

6. DISCUSSION

The study discussed and summarized the approach of ambiguity detection in English language queries. The approach uses the fine-grained senses. Like in the query "Plants in India" has 4 senses in WordNet but few senses are hard to distinguish. So, in this study only the most known senses (appearing in the beginning of WordNet) are used. For certain queries entropy could not be computed as each of the top 10 retrieved documents are found relevant. In this case there is no ambiguity in the query.

7. CONCLUSION

Ambiguity is the well-known problem of the information retrieval setup. It affects the relevancy of the results to a great extent. The ambiguity detection in short web queries is a very challenging task as involves issues like human intervention. However, an appropriate algorithm would definitely help in disambiguating the queries, and thus improving the performance of web mining system. In case of web information retrieval, the type and nature of retrieved documents may vary due to the dynamic nature of web. That's why, some times a query which is usually ambiguous, and resulting in high relevancy of results, may produce low relevancy results at some other time. The test of our ambiguity detection algorithm on search engine shows that the queries which are detected ambiguous are actually producing low relevancy documents.

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TOWARDS SUSTAINABLE SUPPLY CHAIN – THE LESSON LEARNED FROM DISRUPTIONS IN SUPPLY CHAIN MANAGEMENT

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ABSTRACT

The recent Russia-Ukraine conflict, its widespread geopolitical consequences and renewed COVID-19 lockdowns in China have intensified an already bleak global supply chain situation. The economic crises induced by pandemic has changed globally the business environment and the ways business operations are carried out. The acute restrictions and lockdowns created many pressing situations that required urgent strategic attention. With disruption comes new challenges but also paves ways for new opportunities. The crises have shown the unique situation in which companies revisited their installed strategies, processes and systems to respond to severe stress and changes in the environment. As businesses started to a recovery mode there was a need felt to start planning for resilience and sustainability in operations. In this regard, the importance of supply chain re-designing and risk management became more apparent than ever.

This research paper is an endeavour to study the measures to build agility during supply chain disruptions. Paper includes a narrative literature review to examine the SC disruptions caused by Pandemic and highlights the continuous cycle of actions required as response to disruption. Further, in the paper descriptive study has been carried out to highlight the priorities and challenges of manufacturers as they look to adapt to new markets and reposition themselves for the future. The formula for resilient supply chain planning models has been discussed in the paper with reference to digital transformation in order to highlight the importance of renewal strategies and sustainability. The paper concludes that digital transformation to disruption - proof supply chain is the key for the companies to thrive in the uncertain future. Thus, investment in technology for quality information and big data capabilities is new buzzword towards developing a readiness in SC operations and at the same time a balance with cost effectiveness.

Keywords: Supply Chains Disruptions, SC sustainable Model, SC Resilience Strategy.

1. INTRODUCTION

Irrespective of the scale of operations of the company, supply chain management should be a significant function for all businesses to improve their chances of success. Supply chain managementcan be defined as “the active management of key business processes from vendors to customers that provide products and services to add value to customers and achieve a sustainable competitive advantage”.

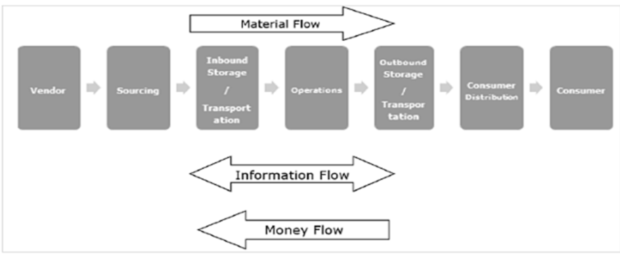

Fig 1: The process of Supply chain

These processes involve managing the movement of materials, information and money throughout the organization while maximizing customer value and achieving business goals. There are usually two main aspects within the supply chain; thematerial management and physical distribution/ outbound logistics. With the advancement and adoption of technology in business processes the supply chain tends to generate planning and scheduling for the above mentioned two aspects and achieve the core objectives.

2. SUPPLY CHAIN DISRUPTION

A supply chain disruption is defined as happening or event that leads to a disturbance in the process of procurement, production, sale, or distribution of products. The causes of Supply chain disruptions may be events such as natural disasters, geopolitical conflicts and pandemics. Infinite number of factors induced by these causes affect the financials, schedules and risk of value chain at any given point of time. The Disruptions events can have a major influence on all the parties involved in supply chain. The coronavirus pandemic experienced by world recently demonstrates how quick a supply chain disruption can occur(Heun, B. 2020). The supply chain around the world with was hardest hit with the restrictions and lockdowns imposed by nations. The principal problem is that supply chains are diverse and complex with many moving parts that can be difficult to synchronize, optimize and digitize, especially with varied applications each managing a portion of the end-to-end supply chain process. (Andrew Crane2019). But at the same time pandemic event has tested the flexibility, resilience and innovativeness of global supply chain leaders, as they had to redesign the model to maintain operations for essential supplies. They have also been vital saviour to support the flow of medical supplies, food and other necessities. The disruption caused by pandemic crises bought the shortcoming of "just in time" management strategy in which goods are received from vendors only as they are required in production schedule. Just in time relied predominantly on the steady and reliable production of goods.

This has paved the way to rethink the procurement and distribution model by global leaders which could spark a need for reconsidering their manufacturing location, additional warehousing space, regionalisation, nearshoring or reshoring to mitigate disruption risk. With this change to realign with the scenario companies has adopted new model of "*just in case*" in place of 'just in time'.

Adoption of technology and digital transformation is now the industry standard. The need to make supply chain more resilience is a driving force behind digitalisation. By taking the right actions at right time, supply chain leaders can turn immense complexity and supply chain disruption into meaningful change. Adoption of technology leads to keeping things cohesive and connected while enhancing speed and efficiency. It involves implementing and integrating Asset management systems, digital twins, IoT and cloud technologies, AI to make value chain more efficient.

So, putting everything together the new matrix of sustainable supply chain advocates the following philosophies for evolving digital to unlock data and rethink the operating model

- **People should be first priority:** mobilize upgraded planning workforce and make it productive by supporting new ways of working.
- **Leverage information to enhance visibility:** use data analysis and interpretation to increase visibility into inbound and outbound logistics, multi-layer partners, capacity, supply and finances across the ecosystem.
- Outline segmentation and targeting to prioritize demand: carefully forecast demand and define prioritysegments.
- **Develop a sales and IT team:** organize dedicated planning and execution teams that are able to undertake multiple involvements and respond effectively.
- **Do scenarios planning:** using simulations techniques companies can predict the events of shortage or surplus of material to evaluate and optimise operations and quantity.

Disruption causes restructuring of almost every supply chain. The academic research done in this field is before COVID driven disruption is predominantly interdisciplinary and no common modelling has emerged during that time. Prior research mostly highlights graph theory or social network analysis, although a few methods have been developed recently specifically for supply chain risk management. (Tobias Bier 2019).

3. LITERATURE REVIEW

The relationship between disruptive technologies and their potential impacts on sustainable supply chain management (SSCM), with a focus on the following technologies: Big Data Analytics / Artificial Intelligence / Machine Learning, Blockchain, Industry 4.0 / Internet of Things (IoT), 3D Printing / Additive Manufacturing, and P2P / Sharing Economy was examined in the paper by Khadija Ajmal, et al in 2021. Many cases discussed in this paper reveal that disruptive technologies drastically improve sustainability performance, but also face scalability issues.Dolgui and Ivanov authored a paper in 2020 in which they pointed thatA firm's competitive advantages strongly depends on the adoption of new disruptive technologies, such as Industry 4.0, Blockchain, Internet of Things, development of supply chain sustainability, and increasing resilience in light of more and more frequent and severe disruption risks. The paper discusses recent developments in exploring supply chain structural dynamics with focus on both positive (i.e., new disruptive technologies) and negative (i.e., disruption risks) triggers of the structural dynamics in complex supply chain networks. O. C. Ferrell in 2017 highlighted a sharing economy in the context of marketing channels and supply chains and concluded that the use of peer-to-peer disruptive technology is challenging participation in traditional marketing channels. The paper provided grounded research that explains new business model and briefly examines key issues that firms in this new marketing channel face. Most updated and recent insights was analyzedfrom the leaders in Supply Chain Network and given new perspectives for the decision makers in their paper by Elfindah Princes 2020. Using qualitative research, this paper discusses the disruptive challenges faced by modern manufacturing industry and the findings show that preparations need to be done by all parties included in Supply Chain 4.0. Kumar, Sanjay 2020 examined the effect of supply chain disruptions on the tactical measures such as lateness and tardiness. In this paper, author explored how supply chain disruptions affect tactical elements such as make to order or make to stock or level or chase strategy. A study on existing literature on supply chain disruptions was undertaken by K. Katsaliaki in 2021. The study summarizes and builds upon the knowledge of other well-cited reviews and surveys in this research area. And shows It shows that publications about SC disruptions started appearing after 2004 but the field has matured fast and in these 15-20 years is populated by many studies which explain and evaluate the impact of the adoption of certain response strategies to SC disruptions and risks.

4. RESEARCH METHODOLOGY

An inductive approach into the subjectivity of the subject matter was followed to conduct the qualitative study in the area of supply chain disruption and sustainable supply chain model. The paper is based on secondary sources and literature review in the area like sustainable supply chain, digitalisation in supply chain management, disruptive supply chain and evolving models.

Objectives

- To explore the measures to built agility in supply chain in the current scenario and in future
- To highlight the continuous cycle of actions required as response to disruption.
- To bring out the formula for resilient supply chain planning evolved in pandemic driven disruption
- To describe the risks and challenges in optimising operations stimulated by digitalisation and sustainability issues.

5. DISCUSSION AND ANALYSIS

Actions to build agility in current scenario and in the future

The global leaders worldwide have realised the impact of disruptions and while designing the response for to the pandemic has emphasized the need to accelerate the adoption of agile ways of operations and value chain transformation to help outmanoeuvre uncertainty. Following measures are identified in this regard:

- Evaluating the impact of disruption in demand – Manufacturers and channel partners should rapidly identify the products that are most critical at the time of disruption, Accordingly, shore up linked supply chains, and reconcile critical skills to meet current and future demand.
- Implementing flexibility in workforce location and SOP: The key to have agility is addressing the well-being and upgrading the capabilities of workforce. Management of changes across people is the primary action to deal with dynamic situations.
- Ensure entire ecosystem viability - understand the implications of factors driving disruptions and revising contract provisions for each critical player in value chain from material suppliers to end consumer.
- Rebalance physical production network assets – accessing the immediate requirement of further capital investment and also reorganise under utilised assets or fast decisions to rearrange current assets bring flexibility imperative for the situation.
- Leverage digital capabilities –Operations handled with digital platforms, accessible data and advanced analytical capabilities will be able to respond more quickly, accurately and successfully during disruptions.

Response to Disruption

A continuous cycle of risk mobilizing, sensing, analysis, configuration, and operation will help to optimize results and mitigate risks as companies respond to both the immediate impacts of the supply chain disruption and prepare for uncertainties heading in future. Following figure depicts the continuous cycle of actions to respond while facing the condition of disruption.

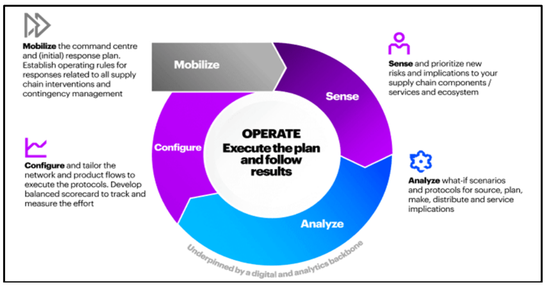

Fig. 2: Continuous cycle of actions source: www.accenture.com/ Supply chain disruption

Resilient Supply Chain Planning

The volatility experienced during disruption has thoroughly tested the supply chain models. There evolved three primary aspects for resilient supply chain planning viz **visibility, scenario planning and data analysis.**

Visibility refers to a clear picture of each tiers/linkage across entire chain. It can be achieved by implementing digital dashboards and ERP platforms for end-to-end visibility. A robust scenario planning for identifying uncertainties better address the volatility and disruption in supply chain. Since driving factors for disruption is external and cannot be influenced much, so a probabilistic planning helps in improving resilience and maintaining competitive advantage. An essential to both supply chain visibility and effective scenario planning is comprehensive, timely and accurate data. Improving data collection and data management processes enhances proactive approach to deal with tactical and operational challenges in a given situation

The turmoil of the pandemic period has forced many organizations to address riskiness in their complex, highly globalized supply networks. While facing the disruption companies realised a gap between their plans and actions. Development of their supply chain risk management capabilities has been much more incremental. The most common measures adopted to align the disrupted demand and supply were to diversify their supply base and boost in-region sourcing and to increases in the inventory of materials and finished goods. Bigger buffers and safety stocks are still seen as an important tool for supply chain resilience. Over the past year, many companies have made structural changes to their supply networks by implementing dual or multiple sourcing strategies for critical materials. Dual-sourcing strategies is not beneficials at the time of disruption but it generally minimises the risk of the business. A significant progress in longer-term strategies designed to increase network resilience is done to implement Multitier supply networks. It means multiple single level collaborations in order to be more responsive to demand in the market. Pandemic has revealed the risk of globalised supply chain and a need was felt to regionalised the source of supply. Developing regionalized supply networks may create a near-shore land based lean and cost-effective supply chain that can be leveraged in disruption.

Supply chain digitization efforts are also entering a new phase. More visible ecosystem partners and the physical production network is possible with the software at place. Digital tools have been critical to companies' efforts to improve the resilience of supply chain planning and execution. The impact of each disruptive technology on sustainability performance varies with the types of technology and sustainability dimensions (Khadija Ajmal, 2021)

6. RISKS AND CHALLENGES

The scale of the impact of supply chain disruption eclipses anything most supply chain leaders will have seen before. The speed of the increase in imbalance requires continuous end-to-end assessment, optimization and monitoring. Businesses need to respond rapidly and confidently to redesign and execute a short-term tactical and operational plan that will mitigate the risks to the functioning of global supply chains. However, there lies risks and challenges in this regard, enlisted as below-

- Market Volatility is one constant that continues to destabilize Supply Chain Risk.
- In the multi-country disruptions, supply chain lack global resilience and agility breaks down.
- The significant impacts that supply chain operations have on environment and society is not sustainable and are not meeting stakeholder's expectations.
- Talent gaps across the supply chain and operations create high dependency on the human resource.
- Traditional inventory replenishment strategy does not work in the era of advancements in technology and the spread of e-commerce. Demand and orders have created a cyclic supply chain that can route from anywhere.
- A lack of flexibility inhibits the ability to address customer demands for personalization and customization.
- IT systems continue to be expensive to run, inflexible and often over-reliant on legacy technologies. Cybersecurity breaches have led to the complete collapse and remains a concern.
- Declining relationships with suppliers or customers at the time of disruption

7. CONCLUSION

In the past years supply chain management as a functional area primarily focused on optimising operations in cost effective manner and commercial best outcome. But, in the new scenario focus has been shifted to leveraging technologies and adopting sustainable best practises with a long-term view. The redesigned supply chain will need to be characterised by both resilience and sustainable. Being agile will help the businesses to manage the near-term crises and enable to build a long-term workable strategy. Having experience the pandemic crises companies have made significant efforts to improve supply chain resilience over the past 2 years by and implementing structural changes to their networks. With disruptions likely to continue with recent geopolitical conflicts, global leaders are expanding their successful digitization programs and resilience to manage disruption risk. Understanding the standing of complex, multitier supply chains is still proving extremely challenging.

Adopting visibility and scenario planning has led the digitalisation in supply chain operation. But at the same time digital talent continues to be a challenge for companies. Being a sustainable supply chain is no longer thought to have a declining curve with profitability but now is considered as an initiative to have positive influence on triple bottom line i,e, people, planet and profit.

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A STUDY CUSTOMER SATISFACTION ON ATM SERVICES WITH REFERENCE TO PUBLIC AND PRIVATE SECTOR BANKS

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ABSTRACT

The year 1992-93 is inscribed in golden letters on the pages of Indian Economic Reform of India the development that we are witnessing today has contributed to this reform somewhere. In this year the Government of India took major reform step to improve the banking sector as well as other sectors of the nation. Today Indian Banking system is one of the world's efficient banking systems. Consequently, computerization and technology implementation in banking transformed banking from paper-based banking to paperless and credit goes to first generation reform in which computerisation was the major step which has made Indian customers dependent on e-banking, nowadays e-banking not only facilitating banking services but also brought large number of services into the reach of customers. A supreme and largely useful creation of e- banking is ATM; nowadays it is considered a complete bank in itself. Entry of e-banking along with ATM in India, banking practices changed drastically. The contribution of ATM in today's banking services is very vital it has been recognized as pivotal of modern banking. Now scope Banking industry become very wide. But on the other hand, retail banking has its own identity it is a distinctive mass-market banking differentiated by a large customer and a large volume of transactions. Retail banking transactions are performed through ATM. So, ATM is becoming day by day popular in urban as well as rural area of India. This paper studies the satisfaction of ATM customers on the basis of three services provided by ATMs of public and private sector banks also compares the satisfaction on the basis of ownership of banks.

Keywords: Banking, ATM, Reform, Satisfaction, Technology.

1. INTRODUCTION

The last three decades witnessed the drastic growth of Indian banking industry which is the result of first-generation reform of Indian banking was undertaken in the year 1991-92 this reform of Indian banking introduced new technology, income recognition, assets classification, capital adequacy norm, computerisation of banking practices and opened the ways for new private sector banks entry.

The entry of new private sector bank into India was done in 1992-93 and this event proved to be the most important in the history of Indian banking because these banks came with very innovative techniques in the Indian economy later on Indian public sector banks started to follow them. In this context, new private sector banks began to expand their business, which was becoming more and more attractive to customers bay by day, at the same time a challenge was arise for public sector banks, then Indian public sector banks begun to follow innovative banking practices.

Both types of banks started increasing the technology-based services on a fast pace, in which the ATM was a major contributor. The customer also preferred to go to ATM instead of bank. On the other hand, it was also the cheapest way for banks, due to which the bank also started taking interest in providing services through ATM. The first ATM in India was established by HSBC Bank in 1986, after that its trend is increasing, with ATMs there are many problems along with facilities.

The transformation of banking in the coming years is likely to be more qualitative than quantitative and reached of ATM banking will up to a common man. According to the Banking Industry and government of India Vision for coming year more emphasis is being made on the financial inclusion. Many reports support that along with one important report also support the same that report has been prepared for the Indian Banks' Association by a committee of experts, based on the projections made in the 'India Vision The report forecasts that the technology in banking will be key in coming 10 year. In coming years Indian consumers will see Indian banking with international standards and ATM will be major mode of money transactions. Consumer will be less dependent on currency or paper money because easily executable and secure plastic money will be conveniently available at 24*7*365 and consumer will be more delighted. Private Banks are also increasing their access in rural areas. They are attracting consumers through various innovative schemes and facilities. All the banks are striving to satisfy their customers by facilitating them easily accessible services at minimum time and cost.

ATM: ATM is electronic device established off the site and on the site of banks which provides banking services through a card. It is an electronic banking outlet, which allows customers of all banks to complete their banking transactions like withdrawal, bills payment, balance enquiry, print of statement, transfer of funds etc without the support of a bank branch employee or teller.

ATM is an electronic telecommunications device that enables the clients of a financial institution to perform financial transactions without the need for a cashier, human clerk or bank teller.

2. LITERATURE REVIEW

A large number of studies have been undertaken on this subject and many experts have evaluated role of ATMs in the growth banking industry, life of customers and consumer satisfaction. Some of the important studies are as under:

Tien Nguyen Hoang and Dinh Ba Hung Anh (2021) present study has been conducted in Vietnam to evaluate the impact of identifies factors on customers. Authors tried to provide a set of factors of ATM services which maximizes the satisfaction level of customers.

Giao, Ha Nam, Khanh (2019) Giao has conducted very wide study on customer satisfaction of ATM Services. Study depicts that main fours factors (1) Price; (2) Network; (3) Reliability; (4) Empathy are major influencing factors. He has conducted a survey of 800 people.

Agrawal, S,. & Jain, A (2018) have calculated the technological advancement in the Indian banking sector. The main purpose of the study was to analyze the effect of innovation in banking on growth and development of the India. The paper studied about financial innovations in the Indian banking sector. It was found that banks boost technological investment spending strongly to address revenue cost and competitions Concerns."

Saravanan A.A., (2017) evaluated the Automated Teller Machine (ATM)'s impact on comsumer's convenient and transaction cost in his study he found that ATM is more proffered mode of banking in comparison of visiting branch because transaction of ATM service is very low along with convenience.

Kumar Ramesh, N., (2017) studied awareness of technology and satisfaction level of consumers with special reference of ICICI bank. In his study he has established relationship between technological awareness and satisfaction of customers and he found that high level of awareness indicates the high level of satisfaction.

Goklaney, Sumit (2014) has studied on role of Information technology which plays vital role in the development of any industry through reducing geographical barriers. He examined that Indian banking sector has been showing greater emphases on the techno and innovation since the reforms. The Indian banking sector has undergone remarkable changes from local braking to anywhere-anytime banking with the implementation of technology. Over the past couple of years, a massive growth has been registered in the number of transactions done through electronic devices.

Chattopadhyay, Pijush and S Saralelimath (2012) has analyzed the relationship between demographic variable and preference to use ATM, a structured questionnaire is used to collect the data from a convenience sample of 300 customers from three sample cooperative banks in Pune city.

Kumbhar, Vijay M. (2011) the aim of his study was to provide a preliminary comparative investigation of the customer satisfaction in ATM service of public and private sector banks in India.

In 2006 S. Murali wrote a paper under the topic "A 2 Z of ATM", under that he covers history of ATM, types of plastic money, functions of ATM, advantages of ATM and future of ATM.

R.N. Ramnathan wrote a paper in 2006 on the "ATM – A Convenient Banking", he covered the ATM in India and especially in public sector banks, factors encouraging ATM growth, frauds in ATM's etc.

Ulrlke Darch and Nerina J. Caltablane (2004) noted down the relationship between demographic, user-situational, attitudinal variables and ATM use in an Australian sample of older adults. They found that while age, education, attitudes and user situational variables are related to ATM use only technology experience, perceived user comfort and control are determinants of ATM use among this population.

Seonmee Kim & Brian H. Keiner, in 1996, uses personal telephone interviews and researches and literature to show how banks change themselves to cope with changes in the market place. The study was focuses especially on high performing institutions and on what makes them different. They find all three banks chosen for study show the same common elements of service excellence.

Mark Goods & Luiz Moutinho (1995) done a work on "The effect of free banking on overall satisfaction: the use of ATM". They testes a hypothesized model which is designed to measure the effects of free banking on perceived overall satisfaction attached to the use of ATM's for bank services. Overall, a number of important differences were found between students and "normal" customers with regard to confidence, charges and frequency of use.

3. OBJECTIVES

Objectives of study are as under:

- To examine the customer satisfaction on cash withdrawal, Money transfer and Balance enquiry services of ATM.
- To study comparative customer satisfaction in public and private sector banks.

Hypothesis:

Null Hypothesis (H_0): There is no significant difference between customer's satisfaction of public and private sector banks on various ATMs services.

Research Methodology: In order to achieve the objectives of the study below research methodology has been used:

Sampling and Sampling Method: Sample size of the

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study is 300 customers 150 customers from each category of bank i.e., public and private. Random sampling method has been adopted for selection of customers.

Data collection and Data Analysis: This paper is basically based on Primary data it was collected through a well-designed questionnaire. To find inferences on customer's satisfaction comparative statements have been prepared.

4. ANALYSIS OF CUSTOMERS SATISFACTION

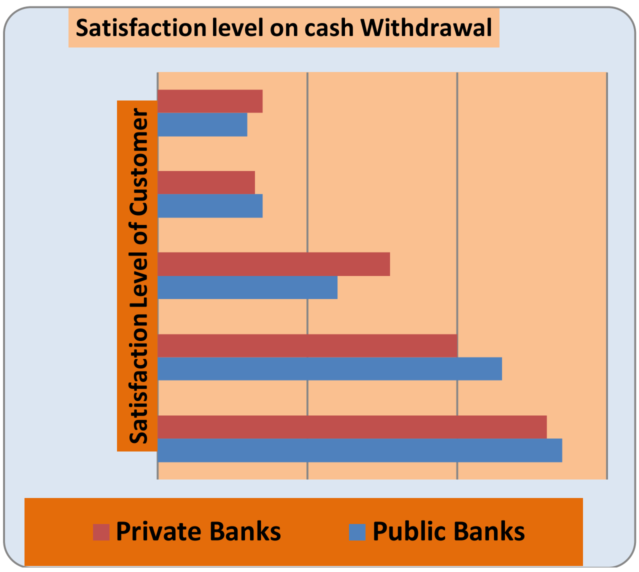
ATM Cash Withdrawal Service: As far as concern of ATM services cash witdrawal is a key service amongst all services provided by ATM. Most of the people approach to for money witdrwal. Researcher has made an effort to assess the sastifaction level of customers of public and private sector banks on this key service.

Table No. 1

Customers Satisfaction on ATM Cash Withdrawal Service				
Bank	**Public Banks**		**Private Banks**	
Level of Satisfaction	Value	Percentage	Value	Percentage
Fully Satisfied	54	36	52	34.67
Satisfied	46	30.67	40	26.67
Neutral	24	16	31	20.67
Dissatisfied	14	9.33	14	9.33
Fully Dissatisfied	12	8	14	9.33

Source: Compiled through questionnaire

Graph No. 1



On cash withdrwal service of public sector banks 66.67 % customer either fully satisfied or satisfied but in the private sector banks this percentage is 61.33. It is very significant to note that the percenrtage of dissatisfied or fully dissatisfied customers are very low 17.33 % in public sector and 18 % in private sector banks. On average customers are more satisfied with public sector banks ATM in comparision to private sector banks and more dissatisfied customers are in private sector bansks.

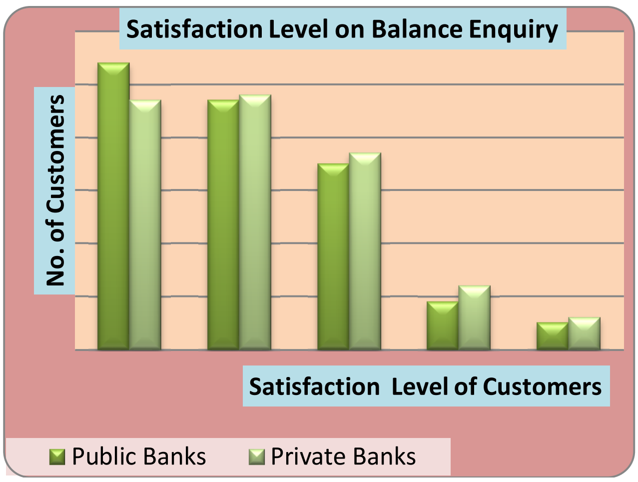
Balance Enquiry Service: Second rank cannot be given to the balance enquiry service of ATM it is also a very important service provided by ATM. Customers repeatedly using this service. The survey of 300 customers is given in below table and a graph also prepared to show real picture and it is found that in both types of majorities of the customers i.e., 67.33 in public sector and 63.33% in private sector are the satisfied customers. Only 14% in public and 12% in private sector banks customers are dissatisfied and average 24 % customers are neither satisfied nor dissatisfied.

Table No. 2

Customers Satisfaction on Balance Enquiry				
Bank	**Public Banks**		**Private Banks**	
Level of Satisfaction	Value	Percentage	Value	Percentage
Fully Satisfied	54	36	47	31.33
Satisfied	47	31.33	48	32.00
Neutral	35	23.33	37	24.67
Dissatisfied	9	6	12	8.00
Fully Dissatisfied	5	3.33	6	4.00

Source: Compiled through questionnaire

Graph No.-2



If we see above graph number of customers are very high with fully satified and very low with fully dissatisfied catogiries. So,a big part of customers are satisfied with this type of service.

Analysis of Money Transfer Function:_Money transfer function of ATM is very useful service for services class people because they are busy though out the week and cannot approach to branch for money transfer so they are using these services in their off-duty hours. Banks provide this service in multiple ways like card-to-card transfer, account to account transfer and other transfer also. Present study shows the satisfaction level of customers on this service.

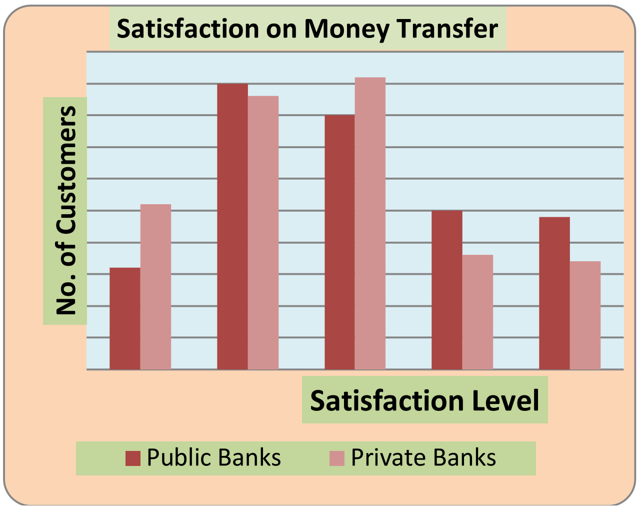
Table No. 3

Satisfaction Level of Customers on Money Transfer Function of ATM

Level of Satisfaction	Public Banks		Private Banks	
	Value	Percentage	Value	Percentage
Fully Satisfied	16	10.67	26	17.33
Satisfied	45	30	43	28.67
Neutral	40	26.67	46	30.67
Dissatisfied	25	16.67	18	12
Fully Dissatisfied	24	16	17	11.33

Source: Compiled through Questionnaire

Graph No. 3



Above graph shows that in public sector banks 46.67% customers are either satisfied or fully satisfied same percentage in private sector banks is 46% but it is very low percentage as far as concern of the money transfer service.But in the both types of banks large number of customers are in the neutral catogry 26.67% in public sector . On this service 32.67% customers of public sector banks are either dissatisfied or fully dissatisfied and the same percentage in private sector banks is 23.33%. on average it is clear from above discussion that Customers are equally satisfied with both the sectors.

5. CONCLUSION & SUGGESTIONS

From the above analysis of consumer satisfaction of public and private sector banks's following inferences are drawn:

- Customers of public and private sector banks are equally satisfied with cash withdrawal service but percentage of fully satisfied customers is very low. But customer of public Sector banks more satisfied than private sector banks because private sector banks have less number of ATMs in comparison to public sector banks. Private Banks should establish more off site ATMs.
- Most of the customers of both the types of banks are either satisfied or fully satified with balance enquiry service and very less number of customers are in fully dissatisfied catogiries.
- In public sector banks 46.67% customers are either satisfied or fully satisfied same percentage in private sector banks is 46% but it is very low percentage as far as concern of the money transfer service. It is aslo found that many customers have no knowledge about other features of ATM except than cash withdrawal.
- Both the types of banks should make their customers fully satisfied and immediate action should be taken on the problems faced by customers especially for money transfer.

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IDENTIFYING THE SUCCESS FACTORS OF INSTAGRAM MARKETING TO REACH GENERATION Z.

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ABSTRACT

Today marketers claim that creating an approachable and appealing picture of a brand on social media, particularly Instagram, is essential for gaining a competitive advantage. Nowadays, businesses use Instagram as part of their plans to boost growth, boost sales, and target a huge audience. The app, which began as a publicity stunt for the general public, has evolved into a strategic platform for businesses. This Research paper aims at effective Instagram use in social media marketing and the significance of Instagram marketing for businesses and examines the strategies and tactics utilized for Instagram marketing to identify the traits of an effective campaign to engage with Generation Z, the "digital natives" who cannot imagine the world without smart devices and internet. Additionally, the goal is to provide theoretical insight into the kind of communication that Gen Z prefers from brands on Instagram, as well as the reasons behind such preferences and the potential outcomes. The study employed a statistical method in which Exploratory factoranalysis was used to condense a significant volume of data into a more manageable and understandabledata set, It helped us find hidden patterns by illustrating how they overlap and showing which traits arepresent in several patterns.

Keywords: Instagram, Marketing, Promotion, Generation Z.

1. INTRODUCTION

Instagram is a full-fledged marketing channel where every brand promotes their service or product by sharing images or videos. Instagram marketing could assist a business in achieving a number of goals with accurate targeting and actionable analytics. The Instagram algorithm is not the scourge that some marketers believe it to be. This is because, like any other online algorithm, its main goal is to provide each user with interesting, relevant, and engaging content. Algorithms accomplish this by carefully examining their users' actions and habits, then using this information to make educated guesses about what those users want to see in the future. Past 5 years Google trend analysis in Figure 1 clearly states that Generation Z specially of Delhi region has knee interest on Instagram and they spend their most of the time on it, that is why marketers are adopting latest Instagram marketing strategies that can easily influence them, Figure 2 depicts the Instagram marketing and traditional marketing trends of last 5 years which clearly states that today marketers have started with Instagram marketing along with traditional marketing.

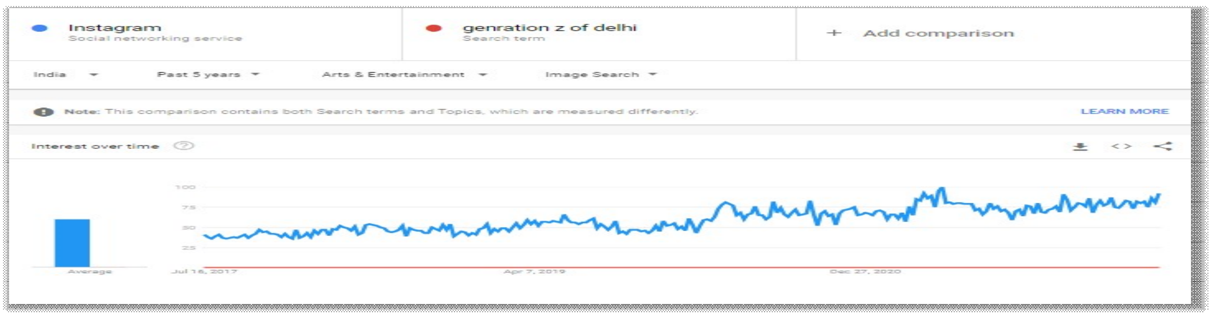

Fig 1: Last 5 years trend depicting generation z on instagram (Source: Google tree)

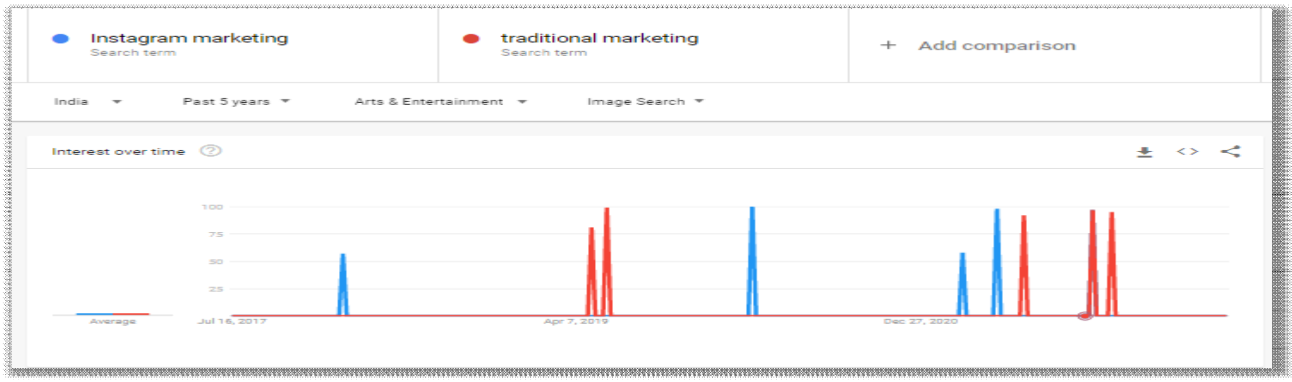

Fig 2: Last 5 years trend on Instagram marketing Vs. Traditional marketing (Source: Google trends)

2. LITERATURE REVIEW

Numerous studies have been done on Instagram marketing and its various impacts. Social mediahas gained popularity in recent years as a tool for business and communication. Instagram is one of the newest social media platforms available to businesses. This mobile app gives users a place to share pictures and videos with their followers (Instagram, 2015). Launched in October 2010, Instagram was acquired by Facebook in 2012. (Instagram, 2014). By April 2015, there were morethan 300 million active users of the Instagram app worldwide (Costill, 2014; Instagram, 2015), including more than 950,000 users in Lebanon. In just three years, Instagram has seen a total of20 billion photo shares. Instagram study is a somewhat new subject, Despite the fact that social media has been the subject of countless research. Only a few research focused on Instagram as asocial media platform. How Instagram Can Be Used as a Tool in Social Network Marketing was a study that looked at how Instagram can be used to promote brands and foster relationships with customers. (Huy, 2015). The study also looked at how popular the platform was with customersas a largely visual medium where users could engage with the companies they were interested in (Huey & Yazdanifard, 2014). ritten comments on a specific image. Instagram allows users to share both photographs and videos. Additionally, users have the option to tag friends in uploaded posts. The "#Hashtag" was a more modern and specific activity that first debuted on Instagram; this feature allowed postings to be connected. For instance, users can add hashtags like "#NDU" to photos taken at Notre Dame University-Louaize to describe the photo's qualities. Instagram is being used by several new online retailers to promote their goods, including apparel, accessories, and cosmetics. People can follow their online store pages and conduct product searches. Kevin Systrom and Mike Krieger, who founded Instagram, allegedly had no idea how it would change the fashion business, according to the Washington Post (2015): "There's a humorous image of Mike and I wearing loose shirts and jeans. Thus, to say that we were considering fashion would be an exaggeration. But Systrom concedes that Instagram has altered the way people dress. It is a part of the tremendous democratisation of fashion that "designers are thinking of items to put in shows to encourage people to take Instagram," creating an entire class of fashion pros who did not refine their skills as junior editors or assistants. Their message is both highly

Fig 3: Word cloud (Source: Researcher's own output)

visible and individualized. It has also been successful for some celebrities, like Chiara Ferragni, who have used it to establish themselves as designers as well as influencers for their thousands of followers.

This is true not just for bloggers from other countries; bloggers from Lebanon regularly use Instagram to showcase their current projects and objectives, as well as the newest fashion trends. For instance, the biggest design houses in the world, like Dior & Fendi, have declared the images and fashion of a Lebanese blogger named Karen Wazen who crashed Instagram. Figure 3 depicts a Instagram marketing word cloud. This word cloud is significant because it reflects the important components as well as control measures of Instagram marketing to influence generation Z. The larger the highlighted component, the greater the frequency with which it is used in the cloud in previous researchers' research work.

3. RESEARCH METHODOLOGY

3.1 OBJECTIVES OF THE STUDY

- To examine the behavioral reaction of Generation Z towards Instagram marketing.
- To validate the factors that are important for marketers to engage the generation Z

3.2 PARTICIPANTS

In order to achieve the intended results, a quantitative approach was incorporated into the study. It specifically entailed polling Instagram users in Delhi/NCR using a questionnaire. The primary data were gathered from 147 respondents from a Delhi/NCR.. Nevertheless, there were 30 contestants, who did not offer full responses. Consequently, the data gathered from 107 Participants was used for statistical analysis.

3.3 CONSTRUCT MEASUREMENT

The measures, which were altered from earlier literature review study, have sufficient internal reliability and convergent validity. Using IBM SPSS Statistics 21, factor analysis is used to analyse the suggested version of the study. A five-point Linkert scale was used.

3.4 RESEARCH INSTRUMENT

An online survey was carried out. To check the questionnaire's authenticity, a pilot survey of 10 respondents was conducted using non-probabilistic sampling. With minor changes, the questionnaire was updated and revamped based on feedback received during the pilot test process. The major evaluation did not make use of the data amassed during the pilot test. Internal consistency and item reliability are used to assess reliability, whereas convergent and discriminant validity make up validity. Cronbach's alpha has been used to assess internal consistency.

4. RESULTS AND DISCUSSIONS

Total responses received were 140 after deleting duplicated or incorrectly categorized responses 129 respondents were considered. Female respondents were 39.5% and male were:

Table 1: Respondent's Age (source: Research Output)

S.No.	Age Group	Responses
1	15-20	66
2	20-25	63
Total		129

Table 2: Respondent's Gender (source: Research Output)

	Frequency	Percent	Valid Percent	Cumulative Percent
Female	51	39.5	39.5	39.5
Male	74	57.4	57.4	96.9
Valid				
Prefer not to say	4	3.1	3.1	100.0
Total	129	100.0	100.0	

A principal component analysis method was applied in order to extract the factors. The variables with the smallest variance were eliminated. Factor loadings greater than 0.40 were acceptable because there were

Factors	Statements	Egin Values	Percentage of Values
Reputation	Do you prefer information/updates from brands on Instagram regarding the products you ordered in thepast?	0.606	5.195
	Do you prefer to buy from Instagram accounts that havemore followers in a specific category?	0.721	3.940
	Do you feel the need to add aproduct in your cart after an influencer market it on Instagram?	0.543	3.456
	Do you define a brand's successby looking at the number of followers it has on Instagram?	0.648	3.258
	When you see visual ads, do youtake active participation by likingand commenting on it?	.793	2.281
	Do you follow events, latest news or products a brand has tooffer on Instagram?	0.688	1.869
	Do you find yourself anticipatingwhen you will buy something again from a brand on Instagram?	0.691	1.712

Commu-nication	Have you discovered brands on Instagram that you were previously unaware of?	0.913	32.938
Motivation	Do you believe that brands on Instagram are more like peoplethan they are on other forums?	0.837	9.712
Content	Do you feel the need to buy afterseeing commercial posts/contentfrom brands on Instagram?	.792	7.015
	Do you share information regarding brands on your ownInstagram?	.585	6.302
	Do you feel the need that brandson Instagram should provide youwith customer service/after salesservice?	.541	5.024
Loyalty	Has Instagram made you moreloyal to a brand?	1.092	7.277
	Do you prefer any type of communication (Direct messages, pictures, videos) frombrands on Instagram?	.563	5.575

5. FINDINGS AND SUGGESTIONS

According to the study, simply having your brand on Instagram may have a positive impact on how viewers perceive it. Consumers believe that prominent companies on Instagram are more well- known (78%), relevant (74%), inventive (77%), entertaining (76%), and committed to the betterment of the community (72%). The results speak for themselves in this case. It's simple to create an Instagram account, and it's an unquestionably quick way to increase your brand's audience appeal. If a brand is unsure of where to start, Facebook offers a number of "blueprint" workshops to help them get started.

Participants also mentioned using Instagram throughout the entire shopping process. People used the platform, for instance, to research products using comments and posts from brand accounts, to learn what was popular at the moment, to determine if they wanted to buy the product or not, and occasionally to complete the transaction on the website. Any effective digital marketing campaign must go where the clients are currently searching. Make sure your strategy includes touch points that keep in touch with clients as they move through the purchasing process if customers use Instagram during that process.

You may achieve this as a marketer by developing posts especially for each of these stages and implementing them into your entire social media plan. To reach customers who are in the discovery stage, for instance, I work with relevant influencers or utilise hashtags, retargeting ads, or other strategies. You might be able to reach people who are still debating a purchase by posting user reviews, customer testimonials, or thorough product information. Speak with users who are considering taking action and encourage them by sending them messages. Make announcements about exclusive discounts, time-limited deals, or promotions to encourage customers to make a purchase.

6. LIMITATIONS OF STUDY

We shall hypothetically restrict the study by focusing solely on the perspectives of branding and marketing communication. By concentrating solely on organizational brands and excluding all other types of brands, such as celebrity brands, the study will also be condensed. Although we are aware that the relationship between Generation Y and the businesses on Instagram is intriguing, we will exclude relationship marketing from this study since it only focuses on brands and marketing communication. We shall only pay attention to relationships as they relate to branding. There has been extensive research on the topics of branding, market communication, and social media, as we discovered while reading. We sought to examine a medium that was comparatively untouched, at least scientifically, in order to be able to diverge from the research that already existed and to contribute with fresh theoretical information. We limited our analysis to Instagram exclusively due to a lack of scientific understanding and Instagram's rising popularity.

7. CONCLUSION

According to the data, Instagram was somewhat relevant to all of the honeycomb blocks. However, three of the blocks effectively sum up Instagram's primary features and functions: sharing (the main feature of Instagram allows users to share pictures and videos with their followers), conversations (more specifically, comments), and presence (Instagram is a platform created for showing and sharing what is happening right now). We discovered that the investigated organisations use Instagram as a marketing tool in two primary ways, with a third strategy used by only one company. Three various ways that Instagram can be used as a marketing tool are shown by these techniques, each of which is represented in a honeycomb block. How long a firm has been in business and how active it has been on Instagram determine the two main strategies.. This chapter is divided into subheadings that investigate various business strategies for using Instagram as a marketing tool in order to clearly respond to our research topic. How businesses use Instagram as a marketing tool will be covered in the last section. Its objective is to learn more about how companies are currently using Instagram for marketing. Additionally, it will look into how much the general public is aware of and concerned about the potential Instagram reach of 12- to 15-year-olds. Additionally, the review will take management ramifications, suggestions for additional study, and social and ethical issues into account.

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FACTORS AFFECTING EMPLOYEE PERFORMANCE IN AI ECOSYSTEM

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ABSTRACT

Artificial Intelligence has changed the lives of people in diverse ways. From Information Technology domain to education, games, retailing, healthcare, it has touched many other aspects also with its wings. The current manuscript was undertaken to understand the factors affecting employee performance during post implementation in F5 firms (software-based firms). A validated questionnaire was used to assess the employee performance those who are using this technology in their business operations of F5 company using a Google Online survey platform. A total of 54 responses each were collected from employees of this firm of different domains of various backgrounds. Collected data from the questionnaire is analyzed using the paired t-test.

Keywords: Artificial Intelligence; Employee Satisfaction; Software Based Firms.

1. INTRODUCTION

Nobody ever thought that some sort of technology would exist in the future that would be able to ever replace or enhance humans in a significant manner. Humans are social creatures, and everything about them—their ideas, cultures, behaviors, values, ethics, etc.—reflects a combination of nature and nurture.

When it comes to the development of human resources, their results, their performance, and several other factors, the environment is quite important. In the current environment, human and machinetogether produce better results with less effort and expense. Technology-based workplace environments are rapidly becoming prevalent.

Almost every area of life or industry is being impacted by technology, including human behavior or performance. AI is influencing various aspects of employee performance such as decision making, autonomy, creativity and many more (Gupta, Toteja and Gupta, 2021). Thus, this manuscript intends to study about the factors effecting employee performance in IT based firms F5. This work will also study how the implementation of AI in F5 effect employee performance.

2. REVIEW OF LITERATURE

Artificial intelligence has made business operations much easier that requires human involvement in an effortless manner that relatively enacts with human intelligence, artificial intelligence extension in the area of business directly emphasize on quality enhancement that extents to design a strong system approach for enabling the tasks more efficiently, enhances workforce productivity and improve customer engagement. (Greg Bowen, 2019).

3. EMPLOYEE PERFORMANCE

Employee performance indicates the outcome on the measuring factors such as creativity and innovation, workplace motivation, stress and overload, flexibility and automation and job risk which directly contributes to employee performance in AI environment (Bert George and Richard Walker, 2019). There is strong evidence from IT sector that employee's performance can be increased through implementation of high-performance work practices in AI ecosystem (Sharma & Aggarwal, 2022).

The review of literature identifies various factors influencing employee performance in artificial intelligence environment. A) Creativity and innovation B) Workplace motivation C) Stress and overload D) Flexibility and innovation E) Job risk

Creativity and Innovation
Today, technology, apart from being a productive tool, helps us to enhance our creativity and innovation regardless of knowledge (Basu, S., Garimella, A., Han, W., & Dennis, A. (2021).

Positive impact of an AI work environment includes flexibility, autonomy, creativity and innovation enhanced employee performance (Malik, Tripathi, Kar and Gupta, 2021).

Workplace Motivation
It is universally accepted that artificial intelligence improves the decision-making ability. It influences various areas of workplace, i.e., performance management, compensation and employee termination. Integration of AI with human intelligence bring attitudinal shift in role and responsibilities (Keding, 2021). Companies will need to change their workforce structure, organisational structure, job design and decision-making process in the future (Glikson and Wooley, 2020).

Stress and Overload
Researcher have suggested that AI can enhance the intelligence of employees by enabling them to understand the complex situation (Charlwood, A., &Guenole, N. (2022). Worker's power and autonomy is gradually eroding because of the use of technology. According to (Mangkunegara, 2011) the reasons for work stress is low quality of supervision, unhealthy work climate, inadequate work authorities to responsibilities and lack of skills to work in AI ecosystem.

Flexibility and Autonomy
Sun (2019) provided strong evidence for utilising Artificial intelligence in auditing and inspection but it all depends on how much autonomy and flexibility have given to the employees.

Job Risk
There is no doubt that artificial intelligence has made our work easier, but along with the job, it has given rise to many problems. In order to achieve results, AI awareness and technology training are essential to improve employee performance. (Pereira, V., Hadjielias, E., Christofi, M., &Vrontis, D. (2021).

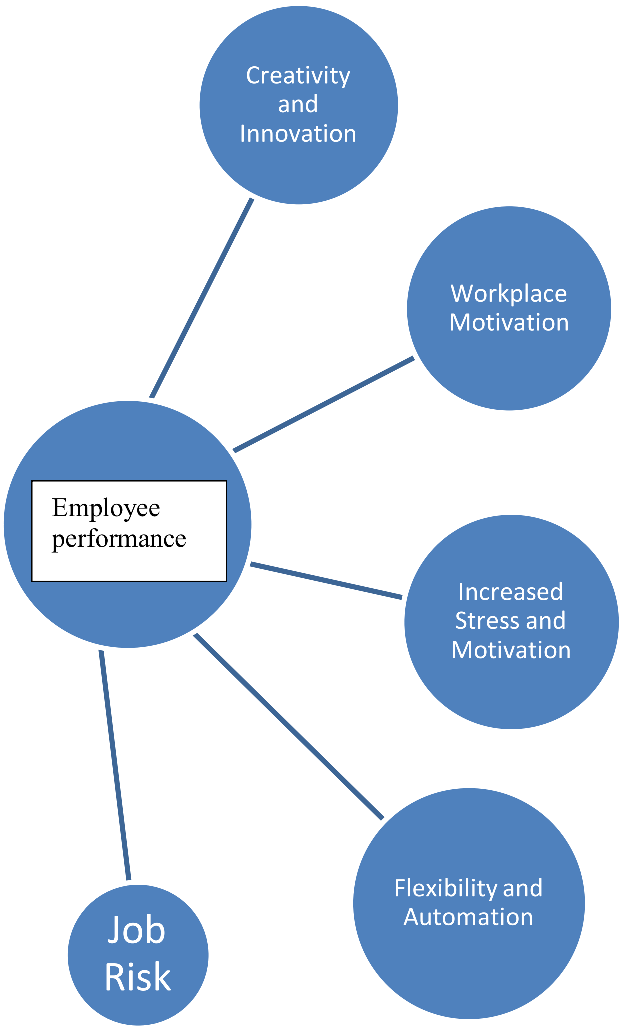
Questions
Research Problems and Questions Research problems for this paper have been identified from gaps found while doing a systematic literature review. The questions raised are the following:

- What is the influence of Creativity and innovation on employee performance?
- How does workplace motivation affect employee performance?
- What is the impact of Increased stress and overload on employee performance?
- Does Flexibility and autonomy affect employee performance?
- How does Job Risk on affect employee performance?

4. RESEARCH OBJECTIVES
To answer the above questions, the following objectives have been identified:

- To identify the influence of Creativity and innovation on employee performance.
- To establish the impact of workplace motivation on employee performance.
- To ascertain the impact of Increased stress and overload on employee performance.
- To evaluate the impact of Flexibility and autonomy on employee performance.
- To assess the effect of Job Risk on employee performance.

Framework



5. METHODOLOGY
The case study of F5 has been used in the manuscript to studythe factors affecting employee performance during post implementation of Artificial Intelligence in F5 company. The relevant data for the present study is collected by using the non-participant observation method

i.e., from journals, books, magazines, online material, and company websites. The sample unit ofthis purposed research covers employees of F5 firm who are using this innovative technology in their organisation. Data was analysed using factor analysis and the paired t-test in SPSS.

6. ANALYSIS AND INTERPRETATION

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.030	21.211	21.211	4.030	21.211	21.211	2.393	12.596	12.596
2	1.815	9.554	30.764	1.815	9.554	30.764	2.355	12.397	24.993
3	1.557	8.197	38.961	1.557	8.197	38.961	2.101	11.057	36.050
4	1.492	7.855	46.816	1.492	7.855	46.816	1.720	9.052	45.102
5	1.183	6.226	53.042	1.183	6.226	53.042	1.509	7.940	53.042

Extraction Method: Principal Component Analysis.

Interpretation: Factor Analysis. 19 statements is grouped into five factors. Eigen values is more than 1 as per the limit. Variance of factor 1 is 21.211, factor 2 is 9.554, factor 3 is 8.197, factor 4 is 7.855 and factor 5 variance is 6.226. The eigenvalue represents the total variance explained by each factor.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.699
Bartlett's Test of Sphericity	Approx. Chi-Square	474.099
	df	171
	Sig.	.000

Interpretation: A KMO value over 0.5 and a significance level for the Bartletts test below 0.05 suggest there is substantial correlation in the data.

Reliability Statistics

Cronbach's Alpha	N of Items
.758	19

Interpretation: The Cronbach's Alpha is considered a measure of scale reliability. For this study, the Cronbach's Alpha is .758 which is above the specified limit of 19 items in the study.

Paired Samples Statistics and Corelation

		Mean	N	Std. Deviation	Correlation	Sig.
Pair 1	Security Optimization P1	5.43	54	1.002	-.087	.531
	Security Optimization T1	2.11	54	.769	.194	.159
Pair 2	Improved performance P2	5.59	54	.790	.038	.784
	Improved performance T2	2.07	54	1.061	.267	.051
Pair 3	Availability of network applications P3	4.93	54	.908	.016	.908

		Mean	N	Std. Deviation	Correlation	Sig.
	Availability of network applications T3	1.48	54	.504	.068	.628
Pair 4	Servers P4	6.02	54	.687	-.248	.073
	Servers T4	1.96	54	.931	.242	.078
Pair 5	Storage systems P5	6.06	54	.899	-.309	.023
	Storage systems T5	2.65	54	1.376	-.258	.062
Pair 6	Rational Decision maker P6	5.72	54	1.017	.307	.024
	Rational Decision maker T6	2.37	54	.977	.038	.784
Pair 7	Accurate decision making P7	5.68	53	.936	.273	.045
	Accurate decision making T7	2.25	53	.731	-.431	.001
Pair 8	Reduce human error P8	5.52	54	1.094	.063	.649
	Reduce human error T8	1.48	54	.606	-.153	.270
Pair 9	Improve efficiency P9	6.02	54	.858	-.211	.125
	Improve efficiency T9	1.87	54	.702	.196	.155
Pair 10	Automative process P10	6.02	53	.843	-.656	.000
	Automative process T10	2.45	53	1.102		
Pair 11	Reduce cost of training and process P11	5.70	54	.768		
	Reduce cost of training and process T11	2.04	54	1.009		
Pair 12	No breaks P12	5.33	54	1.046		
	No breaks T12	2.02	54	.789		
Pair 13	Reduce Bureaucracy P13	4.76	54	1.317		
	Reduce Bureaucracy T13	2.11	54	1.176		
Pair 14	Optimise Operation P14	4.46	54	1.209		
	Optimise Operation T14	2.06	54	.811		
Pair 15	Improve offering P15	5.48	54	.986		
	Improve offering T15	1.78	54	.839		
Pair 16	Lacks in creativity P16	5.30	54	1.039		
	Lacks in creativity T16	2.33	54	.991		
Pair 17	Unemployment P17	5.43	54	.838		
	Unemployment T17	1.48	54	.540		
Pair 18	High cost P18	5.96	54	.800		

		Mean	N	Std. Deviation	Correlation	Sig.
	High cost T18	1.61	54	.627		
Pair 19	No improvement with experience P19	5.63	54	.875		
	No improvement with experience T19	1.91	54	.784		

Interpretation: Through the above it can be inferred that all the pairs are significantly corelated. For Example: In Pair 1, T1 and P1 are significantly related with each other as significant value is .531.

Paired Sample Test: Paired Differences

		Mean	Std. Deviation	Standard Error mean
Pair 1	Security Optimization P1 - Security Optimization T1	3.315	1.315	.179
Pair 2	Improved performance P2 - Improved performance T2	3.519	1.193	.162
Pair 3	Availability of network applications P3 - Availability of network applications T3	3.444	1.022	.139
Pair 4	Servers P4 - Servers T4	4.056	.998	.136
Pair 5	Storage systems P5 - Storage systems T5	3.407	1.631	.222
Pair 6	Rational Decision maker P6 - Rational Decision maker T6	3.352	1.362	.185
Pair 7	Accurate decision making P7 - Accurate decision making T7	3.434	1.323	.182
Pair 8	Reduce human error P8 - Reduce human error T8	4.037	1.115	.152
Pair 9	Improve efficiency P9 - Improve efficiency T9	4.148	1.265	.172
Pair 10	Automative process P10 - Automative process T10	3.566	1.551	.213
Pair 11	Reduce cost of training and process P11 - Reduce cost of training and process T11	3.667	1.064	.145
Pair 12	No breaks P12 - No breaks T12	3.315	1.286	.175
Pair 13	Reduce Bureaucracy P13 - Reduce Bureaucracy T13	2.648	1.507	.205
Pair 14	Optimise Operation P14 - Optimise Operation T14	2.407	1.721	.234
Pair 15	Improve offering P15 - Improve offering T15	3.704	1.253	.171
Pair 16	Lacks in creativity P16 - Lacks in creativity T16	2.963	1.541	.210
Pair 17	Unemployment P17 - Unemployment T17	3.944	1.089	.148
Pair 18	High cost P18 - High cost T18	4.352	.914	.124
Pair 19	No improvement with experience P19 - No improvement with experience T19	3.722	1.510	.205

7. FINDINGS AND DISCUSSIONS

A survey was conducted to analyse the factors affecting employee performance post implementation of AI in software-based firm that is F5. This study also tries to study the various factors such as creativity and innovation, workplace motivation, increased stress and motivation, flexibility and motivation and job risk affecting performance of employees implementing AI during post-implementation period. These factors have been identified through review of literature.

Result concluded that all the five factors are significantly affecting the employee performance during post implementation of AI in F5 firm.

Implications of the study

This study would be helpful for the policy makers and in managing human resource in the organization implementing AI in their operations. This study intends to facilitate in designing the training and development policies, programs etc for the human resource working in the IT based firms who are massively getting affected by the innovative technology known as AI.

Limitations

This study is confined to only employees, other respondents can be explored. Also, manuscript has tried to analyze the factors related to just employee performance. Other factors can also be explored like work life balance, organizational support, financial assistance, personal space etc.

Credit Authorship Contribution Statement

Dr. Deepti-

Dr. Sushma - Review & editing, conceptualization, data analysis

Dr. Monika: Data analysis and Visualization.

Ms. Sakshi Ahlawat: Writing - original draft, Conceptualization, data analysis

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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NOURISHING THE ROOTS OF AGRIPRENEURSHIP IN INDIA–A WAY FORWARD

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ABSTRACT

Agri-entrepreneurship is the imperative to change agriculture into a more profitable and alluring business venture and thus it is sustainable, community oriented, and directly marketed. An agribusiness is a one which is a beneficial fusion of agriculture and entrepreneurship. Agri- entrepreneurship or agricultural entrepreneurship is the establishment of agricultural and allied businesses. Agripreneurship is simply entrepreneurship in the agricultural industry and its supporting industries. In addition to ensuring improved output and profits, the adoption of new methods, processes, and techniques in agriculture and its related industries has acted as a catalyst for long-term transformation in the rural economy. Due to the increased integration of international supply chains and the corresponding compliances necessary to maintain ecological balance, there is a greater need for entrepreneurs in the agriculture and related industries now than there was in the past.

Keywords: Allied Business, Ecological Balance, Alluring Business Venture, Compliances etc.

1. INTRODUCTION

Agricultural entrepreneurship includes a wide range of sub-sectors, including food processing, fisheries, seed processing, smart agri-tech provisioning, soil testing, vermin composting, etc.Rice mills, pulse mills, sugar factories, bakeries, fertiliser production units, food processing units, agro-service centres, etc. are examples of agribusinesses.

The term agri-entrepreneurship is similar with entrepreneurship in agriculture and describes agribusiness establishment in agriculture and allied sector (Bairwa et al., 2014a). Entrepreneurship in agriculture can also be defined as the formation of novel economic organization for the intention of growth under risk and uncertainty in agriculture (Dollinger, 2003). Contrary, Gray (2002) defines an entrepreneur as an individual who controls a business with the purpose of growing the business along with leadership and managerial skills necessary for achieving those goals.

Agri-entrepreneurship program is crucial to build up entrepreneurs and management staff to deal agricultural industry across the world (Bairwa et al. 2014b). Agri-entrepreneurship is greatly affected by the economic situation, education and culture (Singh, 2013). Agri-entrepreneurship is important for national economy in following ways (Sah, 2009)-

- Firstly, it helps in achieving productivity profit by small farmers and amalgamating them into local, national and international markets.
- Secondly, it helps in decrease in food costs, and provides highquality diets to the rural and urban poor in the country.
- Thirdly, it accelerates growth, diversifying income and develops entrepreneurial opportunities in both rural and urban areas.

2. THE NEED AND SIGNIFICANCE FOR AGRIPRENEURSHIP DEVELOPMENT

Referring to the imbalances and striving for balanced economic development, a re-examination of the agribusiness model of comprehensive rural development is inevitable, especially in India. There is a need and an opportunity for farmers to become entrepreneurs and adopt an agribusiness model that helps them create local groups that help them increase their production through collaboration rather thanbeing local farmers. The agricultural enterprise plays a very important role in the growth and development of the national economy, increasing the level of income and job opportunitiesboth in the countryside and in the city.

The main opportunities foragribusiness are in agricultural inputs, agricultural processes and technology, agricultural production processing and other agricultural related industries such as dairy, poultry, horticulture, agriculture etc. Activities such as diversification, precision agriculture, high-tech agriculture, global marketing, organic agriculture, etc. there are also sustainable added values. In addition to creating value chains, agricultural entrepreneurs must focus their activities on the market, not only on production, using various existing systems to approach global markets.

Farmers must find the system that best suits their operations depending on the clusters/value chain in which they operate and manage. They can achieve this by increasing the scope of their value chain by includingkey actors (stakeholders) such as suppliers, warehouses, financial services and transport and logistics service providers.

For the Agripreneurship model to succeed, farmers must create their own value chain to increase efficiency, productivity and competitiveness by connecting farmers, processors and markets. Agribusiness has the potential to generate rural growth, diversify income, employment, and business opportunities. This paper examines the basic concepts of agripreneurship and the development of it in India.

According to some, an agripreneur is someone who uses knowledge at the proper time, focuses on creative ideas, and cultivates their crops using cutting-edge technology. An agribusiness owner assumes the risks associated with the whims of the market, nature, and consumer tastes. Additionally, by encouraging agribusiness, it is possible to guarantee that losses associated with perishable commodities are minimised, consumer advantages are increased, and price discovery is successfully accomplished. Higher investments may be sought because agripreneurs are also involved in post-production processes like processing and marketing that call for specialised handling. Additionally, agribusiness encourages and supports cooperatives, such as dairy cooperatives. A tool for the empowerment of women is agribusiness.

3. AATMANIRBHARTA THROUGH AGRIPRENEURSHIP

Honorable Prime Minister Shri Narendra Modi on 12 May 2020 announced Atmanirbhar Bharat Abhiyan (Movement for Selfish India) with a special financial and comprehensive package of 20 lakh croresto fulfill its mission. The mission focuses on the importance of promoting local products. The mission should also complement the "Make in India" initiative to encourage manufacturing in India, including the agricultural sector, which has great potential.

Agriculture plays a very important role in Aatmanirbhar Bharat. Agriculture continues to be the source of livelihood for the majority of the population. In short, agriculture has a huge impact on every citizen of the country, directly or indirectly. Government of India, Ministry of Agriculture and Ministry of Farmers Welfare recently took many historic agricultural initiatives for the development of AatmanirbharKrishi in India by implementing major reforms in India with the aim of making agriculture a sustainable business.

The 'Udyami Bharat' announcement by the Prime Minister of India on 30 June 2022 emphasizes the importance of entrepreneurship and the opportunities behind it. According to economic theory, the reward of business, which is one of the four factors of production, is profit. An entrepreneur would take the risk of arranging the other three factors of production namely land, labor and capital to maximize objectives such as sales, income, profit etc.

Agriculture is one of the key sectors of the Indian economy, accounting for about 18-20 percent of the GDP, and about 70 percent of the rural population depends on agriculture and allied sectors for their livelihood. However, rural-to-urban migration has increased in recent years, as poor infrastructure has been one of the main push factors and better job opportunities in urban areas have been a major pull factor.

The proportion of the urban population in the total population of the country grew rapidly, 2.76 percent, i.e. the urban population, which was 27.81 percent in 2001, increased to 31.16 percent in 2011. In this background, agribusiness is considered an important opportunity to lighten the burden of agriculture and stop migration from the countryside to the city.

4. POLICIES AND PROGRAMMES TAKEN BY GOVERNMENT TO PROMOTE AGRIPRENEURSHIP

Various ministries and departments of the Government of India have formulated policies and plans to promote agribusiness and create an enabling environment. They are listed as below:

PM Scheme for Formalization of Micro Food Processing Enterprises (PMFME)- This scheme of the Ministry of Food Processing Industries provides financial, technical and commercial support to upgrade existing micro food processing enterprises. The objective of the PMFME program is to improve the competitiveness of existing individual micro-enterprises in the unorganized segment of the food industry and encourage the formalization of the sector.

Agriculture Infrastructure Fund- This program was launched under the AatmaNirbhar Bharat package in 2020. This is a special program of the central government to provide medium and long-term credit facilities for post-harvest management infrastructure and community agricultural asset creation.

Rashtriya Krishi Vikas Yojana- Rejuvenation of Agriculture and Allied Sectors (RKVY-RAFTAAR) - This scheme aims to make agriculture profitable. Economic activity. The system supports financial support and fosters an incubator ecosystem by strengthening farmers' risk management initiatives and focuses on pre-harvest and post-harvest infrastructure development, promoting agribusiness. RKVY-RAFTAAR includes introduction to agricultural entrepreneurship, entrepreneur with scholarship; seed stage funding and incubator funding.

Enrollment Portal Udyam- Launched on July 1, 2020 as part of AatmaNirbharBharati package specially designed to help small and medium enterprises deal with the adverse effects of the COVID-19 pandemic.

Gramodyog Vikas Yojana- It is a scheme of the Ministry of MSME which is an artisan-oriented scheme implemented to revive the traditional and indigenous skills of rural artisans in village industries with a special focus on industries such as oil industry, aromatic oil, honey and beekeeping.

Collateral Guarantee Scheme - This is also a scheme of the Ministry of MSME which covers unsecured loans to MSME.

5. ROLE OF AGRI- START UPS IN TRANSFORMING AGRIPRENEURSHIP

India holds the record for the second largest agricultural country in the worldwith, and about 60 percent of rural households in India derive their livelihood from, farms. India's agricultural sector employs half of our population of, people and we are highly dependent on farmers and agricultural laborers as, people provide us with our livelihood. However, this is one of the riskiest sectors in whichoperates, as it is subject to uncontrollable factors such as weather, market fluctuations and topographical conditions. Efforts are being made to give this industry and its workers a much-needed boost. And the biggest way to do that is through advances in agricultural technology. Modern technologies and methods will surely take agriculture to the next level and ease the burden on farmers. Thus, it creates huge opportunitiesfor, agribusinesses in the country. The transformation of agriculture into agribusiness is one of the most important strategies within which enterprising farmers engage in profitable agriculture.

Over the past decade, educated youth have entered the industry, full of ideas, passion and innovation to launch newer technology and business models to lift the face of agriculture from primitive to cutting edge technology. Startups provide the missing links in the agricultural value chain and deliver efficient products, technologies and services to farmers on the one hand and consumers on the other, from ICT applications to farm automation and weather forecasting to drones and fuelretail.and equipment rental to online vegetable marketing and from smart poultry and dairy farmers to smart agriculture and safe Fromagriculture to innovative food processing and packaging, the spread of all its innovations and powerful technology-based startups is disruptive in the food and agriculture sector.

Agritech start-ups work with technology at the core of their work philosophy and their uniqueness lies in the innovative ways they follow to link technological advancement to farmers. Most of the agritech start-ups have based their business models around state-of-the-art technologies such as Artificial Intelligence (Al), Machine Learning (ML) and the Internet of Things (IoT) and the farmers are being introduced to the new agri practices and are getting exposure to the tools in a way they never were earlier. The Argi start-ups are undertaking various innovations to bring technology to the doorsteps of the farmers at affordable rates. This way these agritech start-ups are revolution is in gagripreneurship. With the Government of India giving special attention to agricultural marketing and the use of technology in agriculture, the sector has experienced rapid growth of smallholders. , The number of Agritech startups grew from 3 in 2013 to 1,300 by April 2022. The investment and growth phase of agritech startups began in 2019, with India receiving $1.6 billion in total funding for these entities by 2021, according to a survey by the India Brand Equity Foundation.Agritech funding was $2 5.2M in 2019, growing by a whopping GR90 to $889M in 2021. There are over 250 Agri-Tech startups in India across the value chain, leveraging the use of technology and innovation in business models to impact the large agri sector in India.

6. MOTIVATION FOR AGRIBUSINESS START-UPS

The entrepreneurs before entering in the venture assess other job opportunities and impact of that on their family (Lan Matrix, 2015). The major motivation for agri-entrepreneurs is to increase household income and expand primary agriculture business in order that additional family members can be engaged (Agnete et al., 2003). In other words, agri-entrepreneurship may be a source of good living. Secondly, it is good for individuals who do not have other career options. Some wants to take advantage of unique resources and use them for competitive advantage in business operations. Small farmers can remain economically feasible on expanding their activities and selling value-added products (Lowson, 2002; Haugen and Vik, 2008).

7. WAY FORWARD: ISSUES , CHALLENGES AND OPPORTUNITIES IN AGRI-ENTREPRENEURSHIP

Entrepreneurship has been included as a subject in the curriculam of many urban educational institutions, so that young entrepreneurs become aware of entrepreneurship as a career opportunity and also hone the skills of young entrepreneurs. However, promotion of entrepreneurial culture among farmers is essential. In this context, Student Rural Entrepreneurship Awareness Development Yojana (PRETA) in agriculture and allied sub-sectors can succeed in generating awareness and interest among the young.

The diversity of the country is reflected in the differences between geographical regions, land profiles and thus agricultural products, and therefore agribusiness policies must consider regional potentials and requirements. Furthermore, the full potential of agribusiness can only be realized if soil, seeds, water, etc. are effectively managed. Therefore, a unified approach is needed between various Ministries/Departments of the Central Government and initiatives of the State Governments. It helps to make farmers self-sufficient.

The scope and possibilities of agri-entrepreneurship have grown as a result of national policy reforms, globalisation of agriculture, and WTO policy reforms. Surveys indicate that India's total rural market is larger than its total urban market, and it is crucial for the creation of the country's corporate growth strategy. Agribusiness has produced a number of opportunities for agricultural product value addition, packaging, retailing, and exports thanks to sophisticated technology and management.

The government plans various policies and frameworks to encourage youth to seek job opportunities in agriculture. There are various microfinance options on the market for those who want to develop in agriculture. Technology penetration is also low in agriculture, making it a very profitable economic opportunity. The government is launching various skill development programs in the field of agriculture. Once a person has mastered this skill, he can run a business on his own, highly educated people are looking for work in agriculture. It will revolutionize the industry. The government's recent logistics policy aims to reduce regulatory complexity and ensure a level playing field for every farmer. This leads to the creation of positive feelings in the market.

8. CONCLUSION

Agripreneurship is not a new thing for India. Additionally, the Startup India Policy launched by the Government of India in 2016 has significantly increased the growth of start-ups and SMEs in the agricultural sector, which has also benefited women entrepreneurs significantly. It is not onlyan opportunity but also a necessity for improving the production and profitability of the agricultural sector.

Agricultural enterprise development has the potential to support a resource infrastructure that grows and creates city-like structures and spaces for local residents in rural areas. Agricultural entrepreneurship also helps reduce poverty by reducing unemployment. It also helps check migration of rural youth and labor and thus reduce population pressure inlarge urban cities.

Agriculture as a sector has a huge potential to increase national income by providing employment and income to the larger and weaker section of the society. Agribusiness is the need of the hour to make agriculture a more attractive and profitable business. It is clear that there is a lot of business potential in agriculture and this potential can only be exploited through effective management of the elements of agriculture such as – land, seed, water and market needs.

Agribusiness is rapidly rising to the need to improve production and profitability in agriculture and related sectors. Development of agribusiness will help the Indian economy to achieve self-sufficiency in food production and balanced economic growth. A sustainable agribusiness model can promote employment-based economic growth in rural areas by leveraging science and technology to create environmentally sustainable and socio-economically viable opportunities andtransform the face of rural India.

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A STUDY ON MARKET SEGMENTATION

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ABSTRACT

Market segmentation research is currently focused too narrowly on the task of segment identification as opposed to its strategic relevance within a firm. In this paper we distinguish an ex-ante approach to market segmentation research, which begins with studying the motivating conditions that lead people to the tasks and interests in their lives, from an ex-post approach which begins with an individual's reaction to marketplace offerings. We argue that the marketing task of guiding managements to 'make what people will want to buy' will be more successful in light of a deep understanding of behaviour in the context of everyday life and work, rather than a detailed understanding of preferences in the marketplace. Directions for future research are discussed.

Keywords: Market Segmentation, Market Definition, Motivation, Occasion for Action.

1. INTRODUCTION

Market segmentation research is a process that goes on longer than the data collection and analysis. The output not just segments. It involves obtaining behavioural information that is useful in guiding managerial choices among options for strategic action. The outcome of market segmentation research is the part of corporate culture, providing discrete labels for groupings, which organize managerial think and facilitate communication providing concrete characterizations of consumer wants within the market. In this paper, we examine the current state of market segmentation research and identify avenues for development. Although research on the topic of segmentation has a long history in marketing, current work is too narrowly focused on the task of segment identification as opposed to the widerer issue of the informational content obtained and segments' strategic relevance. Market segmentation is a conceptually good area of research that touches on problems such as market definition, the unit of analysis, type of consumer behaviour to be explained, appropriateness of basis variables, and the relation of all of these considerations to managerial tasks.

Market segmentation is the actual process of identifying segments of the market and the process of bifurcating a broad customer base into sub-groups of consumers consisting of existing and prospective customers. Market segmentation is a consumer-oriented process and it can be applied to almost any type of market. In dividing or segmenting markets, researchers typically look for shared characteristics such as common needs, common interests, similar lifestyles or even common demographic profiles. So, market segmentation assumes that different segments require different marketing programs, as diverse customers are usually targeted through different offers, prices, promotions, distributions or some combination of marketing variables. For example, Southwest Airlines' single-minded focus on the short-haul, point-to-point, major-city routes, allowed them to prosper as their competitors floundered. The airline's focus on specific segments allowed them to do a better work of deciding what their target segment really valued (for example, convenience, low price, on-time departures and arrivals, among other things).

2. THE BENEFITS OF MARKET SEGMENTATION

Companies who are properly segment their market enjoy significant advantages. According to a study by Bain & Company, 81% of executives found that segmentation was crucial for growing profits. Bain also found that organisations with great market segmentation strategies enjoyed a 10% higher profit than companies whose segmentation wasn't as effective over a 5-year period.

Other benefits include:

- **Stronger marketing messages**: You no longer have to be generic and vague – you can speak directly to a specific group of people in ways they can relate to, because you understand their characteristics, wants, and needs.
- **Targeted digital advertising**: Market segmentation helps you understand and define your audience's characteristics, so you can direct your marketing efforts to specific ages, locations, buying habits, interests etc.
- **Developing effective marketing strategies**: Knowing your target audience gives you a head start about what methods, tactics and solutions they will be most responsive to.
- **Better response rates and lower acquisition costs**: These will result from creating your marketing communications both in ad messaging and advanced targeting on digital platforms like Facebook and Google using your segmentation.
- **Attracting the right customers**: Market segmentation helps you create targeted, clear and direct messaging that attracts the people you want to buy from you.
- **Increasing brand loyalty**: when customers feel

understood, uniquely well served and trusting, they are more likely to stick with your brand.

- **Differentiating your brand from the competition**: More specific, personal messaging makes your brand stand out.
- **Identifying niche markets**: segmentation can uncover not only underserved markets, but also new ways of serving existing markets – opportunities which can be used to grow your brand.
- **Staying on message**: As segmentation is so linear, it's easy to stay on track with your marketing strategies, and not get distracted into less effective areas.
- **Driving growth**: You can encourage customers to buy from you again, or trade up from a lower-priced product or service.
- **Enhanced profits**: Different customers have different disposable incomes; prices can be set according to how much they are willing to spend. Knowing this can ensure you don't over (or under) sell yourself.
- **Product development**: You'll be able to design with the needs of your customers top of mind, and develop different products that cater to your different customer base areas.

3. TYPES OF MARKET SEGMENTATION

With segmentation and targeting, you want to understand how your market will respond in a given situation, like purchasing your products. In many cases, a predictive model may be incorporated into the study so that you can group individuals within identified segments based on specific answers to survey questions.

Demographic Segmentation

Demographic segmentation sorts a market by elements such as age, education, income, family size, race, gender, occupation, and nationality. Demographic is one of the simplest and most commonly used forms of segmentation because the products and services we buy, how we use those products, and how much we are willing to spend on them is most often based on demographic factors.

Geographic Segmentation

Geographic segmentation can be a subset of demographic segmentation, although it can also be a type of segmentation in its own right. It creates different target customer groups based on geographical boundaries. Because potential customers have needs, preferences, and interests that differ according to their geographies, understanding the climates and geographic regions of customer groups can help determine where to sell and advertise, as well as where to expand your business.

Firmographic Segmentation

Firmographic Segmentation is similar to demographic segmentation, except that demographics look at individuals while firmographics looks at organisations. Firmographic segmentation would consider things like company size, number of employees and would illustrate how addressing a small business would differ from addressing an enterprise corporation.

Behavioural Segmentation

Behavioural Segmentation divides markets by behaviours and decision-making patterns such as purchase, consumption, lifestyle, and usage. For instance, younger buyers may tend to purchase bottled body wash, while older consumer groups may lean towards soap bars. Segmenting markets based on purchase behaviours enables marketers to develop a more targeted approach because you can focus on what you know they, and are therefore more likely to buy.

Psychographic Segmentation

Psychographic segmentation considers the psychological aspects of consumer behaviour by dividing markets according to lifestyle, personality traits, values, opinions, and interests of consumers. Large markets like the fitness market use psychographic segmentation when they sort their customers into categories of people who care about healthy living and exercise.

4. HOW TO GET STARTED WITH SEGMENTATION

There are five primary steps to segmentation:

- **Define your market:** Is there a need for your products and services? Is the market large or small? Where does your brand sit in the current marketplace?
- **Segment your market**: Decide which of the five criteria (demographic/firm graphic, psychographic, geographic or behaviour) you want to use to segment your market. You don't need to stick to just one – in fact, most brands use a combination – so experiment with each one and find what works best.
- **Understand your market:** You do this by conducting preliminary research surveys, focus groups, polls, etc. Ask questions that relate to the segments you have chosen, and use a combination of quantitative (tickable/selectable boxes) and qualitative (open-ended for open text responses) questions.
- **Create your customer segments**: Analyse the responses from your research to highlight which customer segments are most relevant to your brand.
- **Test your marketing strategy**: Once you have interpreted your responses, test your findings on your target market, using conversion tracking to see how effective it is. And keep testing. If uptake is disappointing, relook at your segments or your research methods.

Market segmentation strategy

Why should market segmentation be considered a strategy? A Customer Experience Strategy is a considered plan that takes you from point A to point B in an effective and useful way. Market segmentation is similar, as there will be times you need to revisit your market segments, such as:

- **In times of rapid change:** A great example is how the Covid-19 pandemic forced a lot of businesses to rethink how they sell to customers. Businesses with physical stores looked at online ordering, while restaurant owners considered curbside pickups.
  If your customers change, then your market segmentation should as well, so you can understand clearly what your new customers need and want from you.
- **On a yearly basis:** Market segments can change year on year as customers are affected by external factors that could alter their behaviour and responses.
  For example, natural disasters caused by global warming may impact whether a family chooses to stay living in an area prone to more of these events. On a larger scale, if your target customer segment moves away from one of your sales regions, you may want to consider re-focussing your sales activities in more populated areas.
- **At periodic times during the year:** If you've explored your market and created market segments in the Spring, the same market segments may have different characteristics at a different time of the year.
  For example, Winter has several holidays, with Christmas being a huge influence on families. This holiday impacts your market segments' buying habits, how they'll behave (spending more than normal at this time than any other) and where they will travel too (back home for the holidays). Knowing this information can help predict & prepare for period.

When considering updating your market segmentation strategy, consider these three areas:

Acknowledge what has changed: Find out what has happened between one time period to another, and what have been the driving forces for that change. By understanding the reasons why your market is different, you can make key decisions on whether you want to change your approach or stay the course.

Don't wait to start planning: Businesses are always adapting to long-term trends, so refreshing market segmentation research puts you in a proactive place to tackle these changes head-on. When you have your market segments, a good idea is to consider the long-term complications or risks associated with each segment, and forward-plan some time to discuss problem-solving if those issues arise.

Go from what to why: Why did those driving forces come about? Why are there risks with your target market? At Qualtrics, we partner with companies to understand the different aspects of the target markets that drive or slow success. You'll have the internal data to understand what's happening; we help unleash insight into why with advanced modelling techniques. This helps you get smart market segmentation that is predictive and actionable, making it easier for future research and long-term segment reporting.

5. CONCLUSION

It is virtually impossible to satisfy all customers, so it is up to the company to select the specific parts of the market which they can best serve. Therefore, businesses could identify market segments, select a few profitable segments, and develop products and marketing mixes that are aimed at particular customers.

Segmentation is the identification of customer groups who share similar characteristics. This process has a number of advantages, and enables a marketing manager to design an effective plan for each segment. Usually, tourism companies segment their market by using demographic, geographic, psychographic, behavioural and product-related variables. The chosen segments ought to be measurable, accessible, substantial and actionable.

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RESOLUTION OF DEGENERACY IN TRANSPORTATION PROBLEMS

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ABSTRACT

It is a special type of linear programming problem whose objective is to minimize the total transportation cost while transporting various goods from different sources to destination. A standard transportation problem who has ***m*** *sources of supply and* ***n*** *demand destination, the basic feasible solution in the test of optimality requires allocation in* ***m+n-1*** *independent cells. This problem is said to be a degenerate transportation problem.*

The degeneracy problem does not cause any difficulty but it can cause computation problem while determining the optimal minimum solution.

Degeneracy in Transportation problem can occur in two ways: (1) Basic feasible solution may have been degenerate from the initial stage. (2) They may become degenerate at any immediate stage.

Keywords: Degeneracy, Transportation Problem, Optimal Solution, Feasible Solution.

1. INTRODUCTION

Case 1: Degeneracy in initial solution -

In this case, a very small quantity, epsilon **(ϵ >0)** which is slightly greater than zero, i.e., almost equal to zero. It is allocated to an independent cell with a purpose of getting **m+n-1**, number of independent cells.

It is better to allocate ϵ to those independent cells that lowest transportation cost.

The Value of ϵ is estimated to be small that if it is transfers to allocated cells, it does not have any effect on those respective allocated cells this means $x_{ij} + \epsilon = x_{ij} - \epsilon = x_{ij}$ but $\epsilon - \epsilon = 0$. Therefore, ϵ does not have any effect on the total transportation cost so once the purpose of ϵ is over it can be removed.

Case 2: Degeneracy at any immediate stage -

In this case, degeneracy occurs while doing the optimality test, the value of ϵ is allocated to those independent cells which have been unoccupied recently to have **m+n-1** number of occupied cells in the new solution. In this case also once the purpose of ϵ is fulfilled, it can be removed.

2. ADVANTAGES OF DEGENERACY

- The resolution of degeneracy may provide lot of advantages in big problems because it is much necessary to identify the optimal solution when the problem related to the big organizations. Without resolving degeneracy we cannot move forward for the optimal solution as the test of optimality would not be applicable with degeneracy.
- Another advantage of resolving degeneracy is that it would not the effect to the original solution of the transportation problem.
- Since degeneracy may arise either at the initial stage or at any subsequent stage while finding the initial basic feasible solution of any transportation problem. So it is always advantageous to resolve degeneracy if it arises at the initial stage.

About Epsilon:

The allocation of epsilon ϵ should avoid a closed loop and should not have a path. Once this is done, the test of optimality is applied and if necessary, the solution is improved in the normal was until the optimality is reached.

3. HOW DEGENERACY ARISES?

Step 1: Before solving any transportation problem, first we need to check

Whether total demand is equal to total supply or not.

Total Demand = Total Supply

- If total demand is equal to total supply, it is called balanced transportation problem.
- If total demand is not equals to total supply, it is called unbalanced transportation problem.

In Unbalanced Transportation Problem:
We need to add a dummy row or a dummy column to the existing or column.

Step 2: Now we apply one of the methods of Transportation Problem to find the initial basic feasible solution:

- North West Method
- Least Cost Method/ Matrix Minima Method
- Vogel's Approximation Method/ Least Cost Method

Step 3: Another step is to check the number of allocated cells, if the allocated cells are less than **m+n-1**, where:
M= number of rows
N= number of columns
If this happens, this is a case of degeneracy.

4. FINDINGS

How Degeneracy resolves?
In the case of Degeneracy, the conventional method says that we have to allocate an infinitesimally small amount (means an amount which is closer to zero) ϵ to one of the independent cells having the lowest transportation cost so as to satisfy the condition of number of allocations should be equal to **m+n-1**.

Problem:
Find the starting solution in the following transportation problem by Vogel's Approximation Method. Also obtain the optimum solution:

	D1	D2	D3	D4	Supply
S1	3	4	6	4	5
S2	2	4	3	2	2
S3	4	3	8	5	3
Demand	3	3	2	2	

Solution:
First, we will check if it is a balanced transportation problem, i.e,

Total Demand = Total Supply
Or it is an unbalanced transportation problem, i.e,

Total Demand ≠ Total Supply

Here,
Total Demand = 3+3+2+2 = 10
Total Supply = 5+2+3 = 10

So, it is a Balanced Transportation Problem.

Now we apply Vogel's approximation method to the transportation problem for finding the basic feasible solution.

					Penalty		
$\boxed{3}$ 3	7	6	$\boxed{2}$ 4	5	(1)	(1)	(1)
2	4	$\boxed{2}$ 3	2	2	(1)	-	-
	$\boxed{3}$ 3	8	5	3	(1)	(1)	-
3	3	2	2				
(1)	(1)	(3)	(2)				
(1)	(4)	-	(2)				
(3)	-	-	(4)				

Checking degeneracy

$\boxed{3}$	7	6	$\boxed{2}$ 4
2	4	$\boxed{2}$ 3	2
4	$\boxed{3}$ 3	8	5

M = No. of rows and N = No. of columns
No. of Allocated cells = m+n-1
4 ≠ 3+4-1
4 ≠ 6

So, this is a case of Degeneracy.

To solve the case of degeneracy, we will allocate epsilon ϵ to the lowest transportation cost.

In this case, we have to allocate two epsilons (here x_{21} and x_{24} has the lowest transportation cost).

We cannot allocate epsilon in both of the cells, i.e, x_{21} and x_{24} because if we allocate in both of them, then a closed loop is formed which violates the rules of ϵ allocation.

So, we take x_{21} and the next cell which has the next least transportation cost, i.e, x_{31} to allocate **ϵ.**

$\boxed{3}$ 3	7	6	$\boxed{2}$ 4
$\boxed{\epsilon_1}$ 2	4	$\boxed{2}$ 3	2
$\boxed{\epsilon}$ 4	$\boxed{3}$ 3	8	5

Another step is to do the test of optimality. For this, we need Ui → Row index and Vj → Column index.

Then we have to find,

For allocated cells –

Cij = Ui + Vj

For unallocated cells –

Dij = Cij – (Ui + Vj)

$\boxed{3}$ 3	7	6	4	3
$\boxed{\epsilon_1}$ 2	4	$\boxed{2}$ 3	2	2
$\boxed{\epsilon}$ 4	$\boxed{3}$ 3	8	5	4
0	-1	1	1	

Now the cell x_{24} has value of dij < 0, so we need to improve the initial basic feasible initial solution. For this we have to make a loop starting from x_{24}.

3 $\boxed{3}$	7	6	4 $\boxed{2}$	- ϵ
$\boxed{\epsilon_1}$ - ϵ	4	$\boxed{2}$ 3	2 + ϵ	
$\boxed{\epsilon_2}$ 4	$\boxed{3}$ 3	8	5	

$\boxed{3}$ 3	7	6	$\boxed{2}$ 4
2	4	$\boxed{2}$ 3	$\boxed{\epsilon_1}$ 2
$\boxed{\epsilon}$ 4	$\boxed{3}$ 3	8	5

Now again we will do the test of optimality by the help of Cij and Dij.

$\boxed{3}$ 3	7	6	$\boxed{2}$ 4
2	4	$\boxed{2}$ 3	$\boxed{\epsilon_1}$ 2
$\boxed{\epsilon}$ 4	$\boxed{3}$ 3	8	5

Now all dij ≥ 0, so the solution is optimal and unique. So, the transportation cost with the optimum schedule:

$= 3*3 + 2*4 + 2*3 + 2*\epsilon_1 + 4*\epsilon_2 + 3*3$
$= 9 + 8 + 6 + 2\epsilon_1 + 4\epsilon_2 + 9$
$= 32 + 2\epsilon_1 + 4\epsilon_2$ $(\epsilon = 0)$
$= 32$

5. CONCLUSION

It has been observed that the degeneracy may arise at any stage while solving the transportation problems. It is mandatory to resolve the degeneracy to get an optimal solution of the problem since, optimality test cannot be applied to a degenerate problem. It has been also observed that resolution of degeneracy will not affect any changes in the solution of the transportation problem.

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HOW ARTIFICIAL INTELLIGENCE WILL IMPACT GLOBAL INDUSTRIES IN 2022?

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ABSTRACT

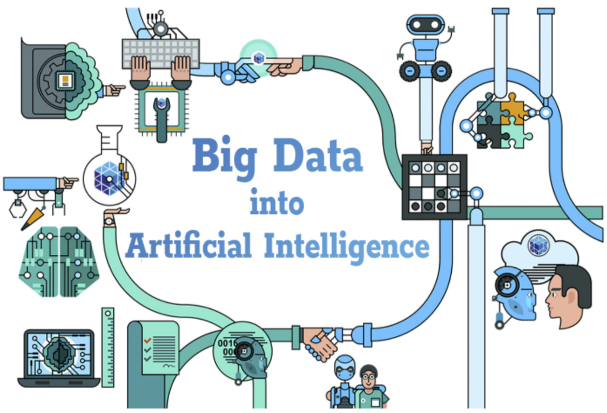
Artificial intelligence (AI), a really revolutionary advancement in computer science, will become an essential component of all modern software in the coming years and decades. This presents both a risk and an opportunity. AI will enhance both defensive and offensive cyber operations. In order to take advantage of some AI technology weaknesses, new cyberattack approaches will also be created. Finally, the enormous amounts of training data that AI requires will raise their worth and change how we must approach data security. To guarantee that this era-defining technology will lead to broadly shared safety and prosperity, prudent global governance will be necessary. On the other hand, the effects of AI and automation on jobs and workers, jobs and wages would be huge.

Keywords: Artificial Intelligence, Artificial Intelligence, Technology, Software.

1. AI AND BIG DATA

Artificial intelligence (AI) broadly speaking refers to computing systems that are capable of performing some tasks in place of human intelligence. This technology is currently evolving at a fast pace, much to the exponential growth that database technology experienced in the later part of the 20th century. Databases are currently the core technology that underpins enterprise-level software. The majority of the new value that software will provide over the ensuing decades is also anticipated to be driven, at least in part, by AI.

In the past ten years, databases have undergone significant modification to suit the "big data" phenomenon. This is in reference to the unprecedented scope and size of contemporary data collections, which are mostly derived from the computer systems that have evolved to mediate almost every aspect of daily life. For instance,



Finding relevant insights among the overwhelming amount of data being collected presently is the fundamental barrier to innovation, not the difficulty of gathering and keeping information. Huge data sets may contain patterns that humans cannot see but which AI can recognise. Even commonplace and seemingly insignificant data can be made helpful by employing AI technology. For instance, researchers have trained computer models to more accurately identify a person's psychological attributes based just on the Facebook postings theyliked.

2. AI AND CYBER SECURITY

Nearly every day, news reports are published about high-profile data breaches or hacks that result in losses of millions of dollars. The International Monetary Fund believes that cyber losses cost the global financial sector between US$100 and US$250 billion annually, despite the fact that they are difficult to quantify (Lagarde 2012). In addition, more people are exposed to dangers as computers, mobile devices, servers, and smart gadgets become increasingly commonplace. Even while the corporate and policy sectors are still having trouble understanding the cybersphere's growing importance, the use of AI to cyber security is heralding even more dramatic advances.

One of the main objectives of AI is to automate jobs that formerly required human intelligence. The quantity of labour resources an organisation needs employ to complete a project or the length of time a person must spend on monotonous tasks can both be reduced to increase efficiency. For instance, chatbots can be used to respond to customer service inquiries while medical assistant AI can be used to identify diseases based on patients' symptoms.

This data set can be used to train an artificial intelligence (AI) system to classify new observations into one of these two groups. This is a basic illustration of how AI might be applied to strengthen cyber defence. Server and network component log lines of recorded activity can be divided into "aggressive" and "non-hostile" categories. The system can therefore distinguish unusual observations from the dense background noise of daily activities acting as an automated sentinel.

One of AI's main objectives is to automate tasks that traditionally required human intelligence, such as using chatbots to respond to customer service enquiries, allowing organisations to operate at exceptionally high levels of efficiency. The picture was given by Piotr Swat/Shutterstock.com.

To handle the astronomical volume of activity that must now be watched, this type of automated cyber defence is required. We have crossed the point in complexity where AI is no longer necessary for defence or the detection of hostile actors. Future systems will only be able to handle the complexity and speed of the cyber security environment by applying AI to the task.

Such AI models need to be updated frequently since, in addition to being used to thwart attacks, hostile actors of all kinds also utilise AI to recognise trends and identify the weak areas of potential targets. Each side continuously investigates the other, developing new defences or tactics to attack in the current level.

3. THE NEW VALUE OF DATA

AI technology will revolutionise the cyber security environment in yet another way, turning vast amounts of information that would not previously have been of interest into alluring targets for adversaries. This is because its appetite for data affects what kind of information constitutes a desirable asset.

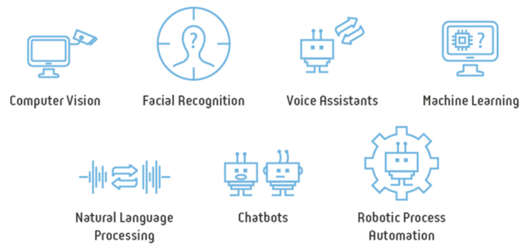
While some cyberattacks just aim to disrupt, hurt, or cause mayhem, many are made with the intention of stealing important assets like intellectual property. Attackers in cyberspace are increasingly using long-term planning as they try to gather information for as-of-yet-unknown objectives. The ability of AI systems to use even harmless data has given rise to the practise of "data hoovering," which comprises capturing and storing any information for undefined future strategic goals.

Together, data and AI link, unite, and uncover both intangible and tangible assets, thus they shouldn't be viewed separately. As the Cambridge Analytica scandal shows, success in business, national security, and even politics is increasingly dependent on data volume. The Marriott event shows how, thanks to AI's capacity to glean valuable information from seemingly unconnected sources of data, relatively common information can now serve as a substantial asset in the fields of intelligence and national security. Actors involved in this domain will therefore likely start focusing on this type of large data more frequently.

4. IMPLICATIONS FOR POLICY AND GOVERNANCE

In light of these changing conditions, the current methods to cyber security will need to be reevaluated. As a system becomes more interconnected, identifying its weakest point becomes more challenging but also more important. As sensors, machines, and humans become interconnected data providers for practical AI systems, there will be an increase in access points for cyber attacks. A comprehensive strategy is needed to minimise weak connections in cyber security; a piecemeal approach will not be effective. The training data that powers the most significant and ground-breaking AI technology is global in scope and gathered from across many different countries, thus it is evident that national-level governance alone will not be sufficient.

Using AI to enhance established cyber assault tactics such as spear phishing will increase their potency while expanding the pool of actors capable of carrying them out by circumventing labour constraints. This heightens the importance of ongoing initiatives such as the UN Group of Government Experts' effort to develop generally accepted standards of behaviour for cyberspace behaviour and global data protection.



Contrary to popular belief, artificial intelligence (AI) has the ability to protect privacy while exercising control over proprietary data and assets.

The same technological advancements that enable more dangerous forms of cyber attack also allow the civilian economy to thrive and allow for stronger cyber defence. Contrary to popular belief, artificial intelligence (AI) has the ability to protect privacy while exercising control over proprietary data and assets. Policymakers will need to carefully consider how to regulate the use of new technologies, striking a balance between the need to prevent malevolent actors from acquiring powerful weapons and the desire to foster innovation.

It will be critical to harmonise these policies across national jurisdictions. Any nation that unilaterally prohibits the use and development of these technologies within its borders will be at a competitive disadvantage because hostile actors may use them.

Coordination of these strategies across national borders will be critical. Any country that unilaterally restricts the use and development of these technologies within its borders will be at a competitive disadvantage because hostile actors can easily cross borders.

5. CONCLUSION

We have now discussed the key characteristics of artificial intelligence, including its benefits, technologies, and a concise description. We could argue that building a machine, such as a robot, is more difficult than learning the ABCs. It is difficult to create a machine that can act and react like a human in a variety of situations. We now recognise that artificial intelligence is the study of creating objects that function exactly like humans. It is the way we reason rationally, act rationally, and think and act like humans. We are aware that a computer has used artificial intelligence to defeat a human at chess. As a result, we can conclude that our efforts thus far have not been in vain.

6. FUTURE SCOPE

It is difficult to forecast the future of artificial intelligence. In the 1990s, artificial intelligence was primarily concerned with improving human circumstances. Is that, however, the only goal for the future? The goal of research is to build human-like machines or robots. This is due to scientists' interest in human intelligence and their awe at the prospect of replicating it. If machines begin to do the work that humans do, the role of humans will undoubtedly change. Researchers' efforts may pay off someday, and we will find our work done by machines and a robot walking alongside us.

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NATIONAL PENSION SYSTEM VIS-À-VIS CONTRIBUTORY PROVIDENT FUND: A STATISTICAL STUDY ON TWO SOCIAL SECURITIES IN INDIAN SCENARIO

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ABSTRACT

Social Security provides a basis of income on which employees can make a plan for their life after retirement or being disabled before retirement or for various needs of the family during service and financial support to the family in case of death of the employee while in service. There are various social security avenues like healthcare, disability, childcare, provident fund, gratuity, pension, insurance, etc. For organized sector employees the important contributory social security schemes are National Pension System (NPS) and Contributory Provident Fund (CPF). NPS is a defined contribution pension system administered and regulated by the Pension Fund Regulatory and Development Authority (PFRDA) while CPF is administered by the Employees Provident Fund Organization (EPFO). An employee can avail of only one institutional contributory scheme as per the rules laid down by the government. The current study through a literature review tries to highlight various aspects of the NPS and CPF. Further, the research brings forward the differences between NPS and CPF statistically. For this literature review research papers, various thesis/dissertations, websites, etc. have been referred. The findings bring in to light the merits and demerits of both schemes.

Keywords: Social Securities, National Pension System, Contributory Provident Fund.

1. INTRODUCTION

As per the Social Security Bulletin, Volume 55, No.1, Spring 1992, pp.63-64, the credit for introducing the term "Social Security"[1] goes to Abraham Epstein, a national leader in the social welfare movement in the first half of the century of the United States of America.

1.1 SOCIAL SECURITIES

As per the bulletin, Epstein worked as Research Director at the Pennyslvania Commission on Old Age Pensions from 1918 to 1927. It was due to his efforts that the State adopted the old-age assistance law in the year 1923 and in 1927 he founded the American Association for Old Age Security. In 1933 he changed the name of his organization from the "American Association for Old Age Security" to "American Association for Social Security" which later on became the basis of the Social Security Act of 1935 establishing the Federal Old-Age Benefits Program, the Unemployment Compensation program and the Federal Assistance Program (among other similar social welfare programs).

Webster's Third New International Dictionary defines the term social security as "1. The principle of public provision for the economic security and social welfare of the individual and his family (as through social insurance or assistance)." 2a. A U.S. government program established in 1935, gradually extended since, and including provisions for old age and survivors' insurance, and old age assistance; 2b. a deduction or payment made under the U.S. social security program (deducted three dollars from his check for social security) (hasn't received his social security for this month). According to Emil Frankel, Epstein's friend and colleague security is the term incorporated in various social legislations which became a household word in the United States and spelled assurance to millions of citizens in meeting life's untoward economic problems. Apart from individually purchased family health insurance policies, and the availability of government and charitable hospitals, there are various social security avenues for an employee working in the organized sector such as Employee State Insurance Coverage, organizational level tie-up with various private hospitals, institutional/organizational medical and health care facilities, etc. Social security for employees of the organized sector also includes Provident Fund, Gratuity, Pension, Earned Leave Encashment, etc.

1.2 NATIONAL PENSION SYSTEM (NPS) AND CONTRIBUTORY PROVIDENT FUND (CPF)

For organized sector employees the important social security contributory plans on Provident Funds and Pensions are National Pension System (NPS) and Contributory Provident Fund (CPF). NPS is a defined contribution pension system administered and regulated by the Pension Fund Regulatory and Development Authority (PFRDA) while CPF is administered by the Employees Provident Fund Organization (EPFO). An employee can avail of only one institutional contributory scheme as per the rules laid down by the government. Hence, the problem of choice occurs before an employee in between the two contributory schemes.

1.3 OBJECTIVES OF THE STUDY

The objectives of the current study are as follows.

- To understand various aspects of the National Pension System.
- To understand various aspects of the Contributory Provident Fund.
- To understand the difference between National Pension System and Contributory Provident Fund.

2. NATIONAL PENSION SYSTEM

National Pension Scheme (NPS) is an investment cum pension plan launched by the Indian Government. This scheme is regulated and administered by the Pension Fund Regulatory and Development Authority (PFRDA). It is specifically launched by the Government of India to offer financial security to Indian citizens. NPS scheme provides impressive long-term savings options so that an individual can plan his/her retirement time efficiently by investing in this safe market-based plan.

2.1 NPS: AN UNDERSTANDING

National Pension System (NPS) is a voluntary, contributory scheme designed to encourage subscribers to plan and save for their future during the period when they are in a position to earn. NPS encourages the habit of saving for retirement among the citizens of India. Under the NPS scheme, the savings of individuals are invested in pension funds which are invested by regulated professional fund managers as per regulated investment guidelines of PFRDA[3] into diversified portfolios comprising Shares, Debentures, Government Bonds, and Bills. The contributions to NPS fund would grow over the years and accumulate, depending on the earnings and returns on the investment. On normal exit from NPS, the subscribers can use the pension fund wealth under the scheme to purchase an annuity from a regulated Annuity Service Provider and also withdraw a portion of the accumulated pension wealth as a lump sum at the time of retirement.

2.2 NPS: HISTORY

As per the provisions of the Indian Trusts Act of 1882, National Pension System Trust (NPST) was established by Provident Fund Regulatory Development Authority (PFRDA) to take care of funds invested under the NPS by the subscribers to their utmost benefit. The powers, duties, and functions of NPS Trust are given under the PFRDA (National Pension System Trust) Regulations 2015 apart from the provisions laid down under the Trust deed of 27.02.2008. As per the Regulations, the NPS Trust is responsible for regulating the operational as well as the functional activities of various intermediaries' of NPS such as Pension Funds, CRA, Trustee Bank, PoPs, Aggregators, and ASPs and to issue directions/advisories to PF(s) to safeguard the stake of subscribers, ensure compliance of provisions, rules, and regulations by way of a regular audit by Independent Auditors, and also carry out a periodical review of the performance of the Pension Funds.

2.3 NPS: FEATURES

NPS Trust is managed by PFRDA through the Board of Trustees. PFRDA nominates the Chairperson of the NPS Trust and also appoints the appropriate person as Chief Executive Officer of the NPS Trust who is responsible for routine administrative and management activities of the Trust. The Board of Trustees meets every three months.

2.4 NPS: TYPES

- Atal Pension Yojana.
- Government Sector (Central Government and State Governments)
- All Citizen Model
- Corporate Model
- NPS Lite/Swavalamban Yojana

2.5 NPS: ELIGIBILITY

- **Atal Pension Yojana** – Any citizen between the ages of 18 to 40 years not covered in any other statutory social security scheme, should have a savings bank account or post office savings account.
- **Government Sector** (Central Government and State Governments). Employees of the Central Government or State Governments or Central Autonomous Bodies or State Autonomous bodies between the ages of 18 to 70 years can be members wherein employee-employer contributions of monthly payments are made at the rates prescribed by the Central Government/State Governments.
- **All Citizen Model** – Any citizen between the age of 18 to 65 years can join the Scheme with a minimum annual contribution of Rs.1000/-.
- **Corporate Model** – An employee of the corporate sector between the age of 18 to 65 years can join the Scheme with employee-employer contributions of monthly payments made with a minimum annual contribution of Rs.1000/-.
- **NPS Lite/Swavalamban Yojana** - Any citizen between the ages of 18 to 60 years can become a member of the scheme with no minimum prescribed

contribution.

2.6 NPS: BENEFITS

Flexibility: NPS provides the flexibility of investment and flexibility of choosing Pension Funds on a periodical basis.

Simplicity: Opening an NPS account is very simple for a subscriber. The subscriber is allotted a PRAN (Permanent Retirement Account Number) for the lifetime.

Portability: Although a subscriber may switch over from one job to another at different locations across India, he can continue to subscribe and be a member of the same NPS accounts through his/her unique PRAN.

Well Regulated: NPS accounts are well regulated by Provident Fund Regulatory Development Authority (PFRDA) and NPS Trust.

Cost Effectiveness: Maintenance charges for the NPS accounts are very less and hence they are very cost-effective.

Compounding of Funds: Pension wealth gets compounded with the passage of time, and there's substantial growth in the pension wealth till the retirement of the subscriber.

Easily Accessible: NPS accounts can be opened and managed online, and periodical subscriptions can also be made securely through online mode.

Partial Withdrawals from NPS Tier-1:
Partial withdrawals can be made from the NPS Tier-1 Account by an employee for Higher Education of Children, for Marriage of Children, for purchase/construction of a residential house or flat, for treatment of prescribed illness, to meet medical and incidental expenses arising out of disability or incapacitation suffered by the subscriber, etc. after completion of specified durations as prescribed under the NPS guidelines. At present, an employee can withdraw up to a maximum of three times during the entire service period.

Flexible Contributions to & Withdrawals from NPS Tier-II Account:
The subscriber has complete flexibility to make any number of contributions and withdrawals from the NPS Tier-II account without any restrictions. However, the only condition for opening an NPS Tier-II Account is that the subscriber should already have an NPS Tier-1 Account.

2.7 NPS: STATISTIC

The NPS statistics of the overall growth of subscribers, assets under management, and average assets under management are provided below to have a clear idea in this regard. This includes various categories of NPS which are NPS Main, NPS Corporate, NPS Lite, Atal Pension Yojna, and NPS of Central and State Governments. The statistics are from recent years from 2018 – 2022.

Table 2.7.1: Growth of Subscribers (no. & percentage) over last year *

Financial Year	NPS Main		NPS Corporate		NPS Lite	
	No.	Growth (%)	No.	Growth (%)	No.	Growth (%)
2018-19	1005072	39.07	994124	20.74	5683945	4.85
2019-20	1189685	18.37	1190749	19.78	5842971	2.80
2020-21	1836899	54.40	1544275	29.69	6401617	9.56
2021-22	2565740	39.68	1897241	22.86	6487735	1.35

Financial Year	Atal Pension Yojna		Central Govt. NPS		State Govt NPS	
	No.	Growth (%)	No.	Growth (%)	No.	Growth (%)
2018-19	15584507	62.55	2715127	5.81	5167941	17.36
2019-20	21920575	40.66	2852437	5.06	5795446	12.14
2020-21	30537493	39.31	3158663	10.74	6668272	15.06
2021-22	38673900	26.64	3268646	3.48	7243221	8.62

Financial Year	Overall NPS	
	No.	Growth (%)
2018-19	31150716	32.42
2019-20	38791863	24.53
2020-21	50147219	29.27
2021-22	60136483	19.92

From the table(s) above it can be deduced that the figures are going ups and downs years wise. In recent years the figure has gone down.

** Sources of Data: Figures obtained from NPS Annual Reports for the F.Y. 2018-19, 2019-20, 2020-21, 2021-22 uploaded on NPS Trust website www.npstrust.org. Growths over the last /previous year were calculated by the researchers.*

Table 2.7.2: Assets under Management (AUM) at the End of Financial Year (Rs. in Crores) **

Financial Year	NPS Main		NPS Corporate		NPS Lite	
	AUM	Growth (%)	AUM	Growth (%)	AUM	Growth (%)
2018-19	9567.38	66.57	30875.91	44.43	3409.23	13.42
2019-20	12912.84	34.97	41242.53	33.58	3728.40	9.36
2020-21	22206.09	71.97	62608.46	51.81	4354.38	16.79
2021-22	32346.28	45.66	90633.28	44.76	4686.74	7.63

Financial Year	Atal Pension Yojna		Central Govt. NPS		State Govt NPS	
	AUM	Growth (%)	AUM	Growth (%)	AUM	Growth (%)
2018-19	6860.30	79.69	109010.70	28.32	158490.42	37.01
2019-20	10526.26	53.44	138014.59	26.61	211054.51	33.17
2020-21	15687.11	49.03	181788.30	31.72	291380.82	38.06
2021-22	20922.58	33.37	218576.94	20.24	369426.72	26.78

Financial Year	Overall NPS	
	AUM	Growth (%)
2018-19	318213.94	35.65
2019-20	417479.13	31.19
2020-21	578025.16	38.46
2021-22	736592.54	27.43

From the table(s) above again the figures show ups and downs. Again there is a downward movement of figures in recent years.

*** Sources of Data: Figures obtained from NPS Annual Reports for the F.Y. 2018-19, 2019-20, 2020-21, 2021-22 uploaded on NPS Trust website www.npstrust.org. Growths over the last/previous year were calculated by the researchers.*

Table 2.7.3: Average Assets under Management per Subscriber (in Rupees)***

Financial Year	NPS Main		NPS Corporate		NPS Lite	
	Avg. AUM	Growth (%)	Avg. AUM	Growth (%)	Avg. AUM	Growth (%)
2018-19	95190.99	19.78	310584.09	19.62	5998.00	8.17
2019-20	108539.99	14.02	346357.88	11.52	6381.00	6.39
2020-21	120889.01	11.38	405423.00	17.05	6802.00	6.60
2021-22	126069.98	4.29	477710.95	17.83	7224.00	6.20

Financial Year	Atal Pension Yojna		Central Govt. NPS		State Govt NPS	
	Avg. AUM	Growth (%)	Avg. AUM	Growth (%)	Avg. AUM	Growth (%)
2018-19	4402.00	10.55	401493.93	21.27	306680.01	16.74
2019-20	4802.00	9.09	483847.99	20.51	364173.02	18.75
2020-21	5137.00	6.98	575522.93	18.95	436966.01	19.99
2021-22	5410.00	5.31	668707.90	16.19	510030.99	16.72

Financial Year	Overall NPS	
	Avg. AUM	Growth (%)
2018-19	102153.01	2.44
2019-20	107620.28	5.35
2020-21	115265.65	7.10
2021-22	122486.80	6.26

The figures above show that there has been a gradual growth in Average AUM. However, there is a slight decline last year.

**** Sources of Data: Figures obtained from NPS Annual Reports for the F.Y. 2018-19, 2019-20, 2020-21, 2021-22 uploaded on the NPS Trust website www.npstrust.org. Average of AUM and Growth over the last year or the preceding year were calculated by the researchers.*

2.8 NPS: CRITICISM

NPS fund growth is dependent on market growth and the various market instruments in which the funds are invested. It does not offer fixed periodical returns as is available in the comparable social security scheme. It works on the dictum higher the risk higher the returns. Although, for subscribers who are risk averse, can choose to invest most of their funds in government and corporate bonds and bills which yield relatively lower but safer returns.

3. CONTRIBUTORY PROVIDENT FUND

The Contributory Provident Fund Scheme 1952[4] is a contributory scheme that is statutorily applicable to establishments employing 20 or more persons at a time. It was introduced by the enactment of the "Employees Provident Fund & Miscellaneous Provisions Act, 1952[5]. It also includes seasonal workers and workers employed on a full-time or part-time basis and also the laborers engaged in construction work through outsourcing agencies.

3.1 CPF: AN UNDERSTANDING

Under the Contributory Provident Fund Scheme, 12% of the monthly wages of the employee are contributed by the employee and a similar matching contribution of 12% is contributed by the employer in the Contributory Provident Fund Account of the employee.

3.2 CPF: HISTORY

To provide statutory social security to the employees working in establishments with employee strength of 20 or more persons, Contributory Provident Fund Scheme 1952 was introduced through the enactment of the Employees Provident Fund and Miscellaneous Provisions Act, 1952.

3.3 CPF: FEATURES

The CPF provides three parallel and integral schemes i.e. CPF Scheme 1952 which contains the Contributory Provident Fund Account of the employee, from which the employee can make partial withdrawals while in service for specific purposes as per various governing provisions and the balance amount is paid to the employee at his retirement. The EPFO in consultation with the government declares annual interest on the funds available in the CPF account of the employee at the end of every financial year. The Employees' Deposit Linked Insurance Scheme 1976[6] provides life insurance benefits to employees. In the event of the unfortunate death of the employee while in service, his nominees/legal heirs are entitled to a minimum insurance benefit of Rupees Two Lakh Fifty Thousand and a maximum insurance benefit of Rupees Seven Lakhs depending upon the funds available in the Provident Fund Account of the Employee at the time of unfortunate death. The monthly insurance premium of the employee towards the EDLI 1976 Scheme is statutorily borne by the employer. The Employees Pension Scheme 95[7] provides a minimum pension of Rs.1000/- per month and a maximum pension of Rs.7500/- per month to the employee at the time of his/her retirement. Similarly, widows, children, and orphan pensions are also payable to the family members of the employee concerned as per provisions contained in the EPS Scheme 1995. The monthly subscription to EPS 95 scheme is met out from the 12% contribution made by the employer towards the CPF account of the employee.

3.4 CPF: TYPES

Under the provisions of this EPF and MP Act 1952, the Contributory Provident Fund Scheme 1952 has been introduced, followed by the Employees Deposit Linked Insurance Scheme, 1976, and the Employees Pension Scheme 1995. All these three schemes are integral and inseparable from each other. Once an employee becomes a member of the CPF Scheme 1952, an employee simultaneously becomes a member of other two schemes namely EDLI 1976 and EPS 1995.

3.5 CPF: ELIGIBILITY

To be eligible for membership, the establishment under which the employee is working should be an establishment covered under the EPF & MP Act, 1952 i.e. the employee strength of that establishment/organization should be 20 or more employees and it should not have been covered under any other statutory social security pensionable scheme and the age of the employee has to be between 18 years to 58 years.

3.6 CPF: BENEFITS

Apart from Life Insurance Coverage under the EDLI 1976 Scheme and Pension receivable under the EPS Scheme 1995, the CPF provides the benefit of partial withdrawal from the CPF account for various purposes such as Financing of Member's Life Insurance Policies, Purchase of House/flat including acquisition of Land, Purchase of House/Flat, including acquisition of land of a registered Cooperative Society, Repayment of Housing Loan, withdrawal of funds from Provident Fund Account if establishment/factory is closed/locked down or the employee remains unemployed for more than one month, Illness of Self and Family members, Marriage of Self, Children, Brother & Sister or Post Matriculation Education of children, Natural Calamity, Cut in electricity in factory/establishment, physically handicapped members for purchase of equipment, Withdrawal one year before retirement, for investment in Varishta Pension Bima Yojana, in case of discharge/dismissal/retrenchment of member challenged by him/her in Court of Law. A member can withdraw funds for various purposes on various occasions subject to the guidelines of the CPF Scheme. The CPF amount is exempt even from Court Decree. No amount can be recovered by the employer from the CPF account of the employee.

3.7 CPF: STATISTIC

The EPFO statistics of the overall growth of subscribers, assets under management, and average assets under management are provided below to have a clear idea in this regard. The statistics are from recent years from 2018 – 2021. The statistics for the years 2021-22 are not available.

Table 3.7.1: Growth of Subscribers (No. & percentage) over last year #

Scheme	EPFO	
	No.	Growth (%)
2017-18	210811048	9.01
2018-19	229193593	8.72
2019-20	247664359	8.06
2020-21	252600000	1.99

From the table above it can be deduced that the figures were going equivalently but the recent year is showing the drastic downfall of figures.

 # Sources of Data: Figures obtained from EPFO Annual Reports for the F.Y. 2017-18, 2018-19 2019-20, and 2020-21 uploaded on EPFO website www.epfindia.gov.in. Growths over the last/previous year were calculated by the researchers.

Table 3.7.2: Assets Under Management (AUM) at the End of Financial Year (Rs. In Crores) ##

Scheme	EPFO	
	AUM	Growth (%)
2017-18	1292169.11	6.99
2018-19	1428012.87	10.51
2019-20	1584397.25	10.95
2020-21	1386945.53	-12.46

From the table above it can be seen that the figure has gone up but in recent years it has abruptly down and also growth is negative.

Sources of Data: Figures obtained from EPFO Annual Reports for the F.Y. 2017-18, 2018-19 2019-20, and 2020-21 uploaded on EPFO website www.epfindia.gov.in. Growths over the last/previous year were calculated by the researchers.

Table 3.7.3: Average Assets Under Management per Subscriber (in Rupees) ###

Scheme	EPFO	
	Avg. AUM	Growth (%)
2017-18	61295.13	-1.85
2018-19	62305.97	1.65
2019-20	63973.57	2.68
2020-21	54906.79	-14.17

The figures above show that average assets under management have grown very meager in three years but in recent years the growth percentage has gone negative and dropped down to large extent.

Sources of Data: Figures obtained from EPFO Annual Reports for the F.Y. 2017-18, 2018-19 2019-20, and 2020-21 uploaded on EPFO website www.epfindia.gov.in. Average AUM and Growth over the last/previous year were calculated by the researchers.

3.8 CPF: CRITICISM

Since the CPF Scheme provides the flexibility of withdrawing funds during the service, a very meager amount is left in such cases at the time of retirement for the post-retirement life of the employee. Also, the lump sum amount received at the time of retirement by the employee may be spent by him unwisely thereby leaving him/her in financial hardships if the amount received is liquidated and spent quickly. Since the maximum pension amount payable to an employee is Rs.7500/- per month, it may not be sufficient for the employee to meet the post-retirement expenses from this pension amount.

4. CONCLUSION

From the study above following, conclusions can be drawn concerning the growth of NPS subscribers over the last year. The subscribers have taken up and down a path and recently it has shown a downward figure. Regarding CPF it can be said that subscribers were almost constant for three years but in the latest year, it has gone down very much. Thus, it can be said that the growth of NPS is now more stable than CPF. About assets under management, NPS has shown up and downward behavior, and the latest year was towards the downside while CPF has gone drastically downward and also towards a negative figure. With reference to average assets under management, NPS has shown up and downward behavior, and the latest was towards the downside while CPF has shown little growth but in the latest year it has gone drastically downward and that also towards a negative figure.

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GREEN HUMAN RESOURCE MANAGEMENT [HRM](GHRM)

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ABSTRACT

The main objectives of this research work are to explore the historical development of Human Resource Management [HRM], to propose arguments for recognizing sustainability as the future of Human Resource Management HRM] and to develop the concept of Green Human Resource Management (GHRM) to establish a need. To study the paradigms on Employee Satisfaction and Loyalty as Key Priorities. How to deal with different tools in Green Human Resource Management (GHRM)? To have an insight on the overall impact of the organizational performance for efficient Human Resource Management [HRM].

Now, it is the time for sustainable development. For this world to remain a good place to live, we need to implement environmental policies. Organizations can actively contribute to maintaining a cleaner and safer ecosystem by incorporating several key environmental initiatives. This simple theoretical paper looks at the steps the organizations are taking to promote sustainable growth and green initiatives. The study suggests that HR Departments need to incorporate eco-friendly activities and eco-friendly practices in their organisations. Green Human Resource Management (GHRM) is a concept that complements the basic understanding of this idea.

Keywords: Green Human Resource Management (GHRM), Human Resource Management (HRM), Sustainability, Strategic HRM

1. INTRODUCTION

Green Human Resource Management (GHRM) can be defined as a long -term conceptual approach and activities aimed at the socially responsible and economically appropriate recruitment and selection, development, placement and release of employees (Thom & Zaugg, 2004). There is always a struggle about where we are, where we need to go, what we need to do now, and what we need to do next, achieve strategic goals at the cutting edge of what to do. According to Kramar (2014), Green Human Resource Management (GHRM) refers to the social and human outcomes that contribute to the long - term viability of an organization, i.e., a sustainable organization.

In the 21stcentury, companies in an increasingly changing market environment face globalization, social change, technological innovation, and high customer expectations. For companies to grow efficiently, they need an approach that maintains a certain level of competitiveness in a complex and dynamic business environment and knowledge-based economy.

Finally, an organization's focus on real market models for efficient and effective use of economic, social and human resources in the near future will ensure its long-term sustainability (Docherty et al., 2002). Green Human Resource Management (GHRM) focuses on increasing employee's employability. Apply participatory management approaches to enhance personal responsibility and ensure a work-life balance environment.

The following points support sustainability as a Human Resource Management (HRM) concept. HRM cannot ignore social debates about the need to contribute to sustainability and sustainable development.

Ehnert (2014) found that in addition to the short-term nature of performance, the active commitment to renewal, regeneration and reproduction of organizational resources for long-term survival is also neglected. Therefore, it is imperative to rethink resource management, including current and potential (future) Human Resources. Incorporating sustainability into an organization's strategy can help companies achieve their sustainability goals (Ehnert, 2009) of Population growth, growing social inequality, and poverty.

Ehnert (2009) argues that these trends highlight the need for more Green Human Resource Management (GHRM) Practices and argues that sustainability can be seen as a strategic possibility for Human Resource Management (HRM). I am seeing Ehnert (2014) defines sustainability as a concept for providing new solutions, making economic systems and organizations more sustainable, and socially less harmful in the long run.

2. BACKGROUND

Sustainability and Strategic Human Resource Management (SHRM) is a very rich literature. However, Green Human Resource Management (GHRM) is a rapidly evolving field. The term sustainability can be used in many aspects including meeting the needs of people today without compromising the ability of future generations to meet their own needs.

The terms sustainability and sustainable development are used interchangeably (Filho, 2000). Dyllick & Hockerts (2002) found that the concept of sustainability is primarily influenced by three different interest groups. Ecologists, Business Strategists, United Nations World Commission on Environment and Development (WCED) are called the

Brundtland Commission. Some authors believe that sustainability first emerged as a concept in the forest sector before being adopted by ecosystem movements concerned with over-exploitation of natural and ecosystem resources (Filho, 2000). While ecologists focus on the ecological dimension of sustainability, i.e., protecting the natural environment, the traditional goal of economic strategists is the economic sustainability of an organization (Dyllick & Hockerts, 2002).

From a business perspective, sustainability is defined as a company's ability to achieve its business objectives and enhance long-term shareholder value by integrating economic, environmental and social opportunities into its Business Strategy (Symposium on Sustainability, 2001).

Evidence is rapidly accumulating that corporate social and environmental performance can be strongly associated with financial and market success, the investment community and corporate employees appear to be paying more and more attention to the extent to which companies are managed with sustainability in mind (Dixon, 2003).

His three-pronged approach to sustainability focuses on both the external and internal influences of an organisation. It also addresses the sustainability of short-term and long-term impacts on various stakeholders within the organization. In other words, Green Human Resource Management (GHRM) is an economic justification for investing in the continued existence of resource sources when a company's viability is at stake (Ehnert 2006).

Green Human Resource Management (GHRM) is interpreted as a cross-cutting task (Ehnert 2006).

Green Human Resource Management (GHRM) is a long-term oriented conceptual approach and activity aimed at socially responsible and economically wise recruitment and employee selection, development, placement and release (Zaugg & Thom, 2004). Green Human Resource Management (GHRM) can help maintain employee dignity and secure employment in the Labour Market during downsizing (Zaugg & Thom, 2004). Thom & Zaugg (2004) argued that a sustainable human resources policy focuses on implementing appropriate and transparent procedures for recruitment and retention, training and development, performance management and motivation, and employee engagement found to represent a long-term oriented approach and long-term oriented activity. Developing socially actionable and accountable policies for employee recruitment and retention, engagement, commitment, and motivation.

It is stated that implementing sustainable HR Policies can create a more productive and engaged workforce, ultimately leading to organizational success. Ehnert (2009) states that a sustainable HR Model consists in predicting the short and long-term impacts of policy implementation and measuring an organization's success not only financially, but also socially and environmentally. We also harness the power of Human Resource Management [HRM]to develop and empower our employees by creating a positive work environment.

Several studies have shown links between sustainability and Human Resource Management [HRM]. A new approach has been established for sustainable Human Resource Management [HRM].

Sustainability Issues and HR Management - HRM's sustainability perspective raises awareness of the ambiguity and duality of HRM, the unintended negative side effects of HR Practices, and social rationality (Ehnert, 2006).

3. SUSTAINABILITY AND HUMAN RESOURCE MANAGEMENT [HRM]

Green Human Resource Management (GHRM) is changing the traditional way of managing human resources for long-term profitability and sustainable development. This approach includes the socially responsible use of Human Resource Management (HRM) and the promotion of well-being and health in terms of social justice and social legitimacy (Ehnert, 2009).

Strategic HRM and Green Human Resource Management (GHRM) - The application of the concept of sustainability in Human Resource Management [HRM] has created a new approach - Green Human Resource Management (GHRM) stands for Strategic HRM have different characteristics. Recognize social or human consequences rather than economic consequences (Kramer, 2014).

4. MAIN FOCUS OF THE CHAPTER

Historical Evolution of Human Resource Management [HRM](HRM)

Human Resource Management (HRM) is an area of constant development and change. Also, since there is no standard model or ideal approach to Human Resource Management (HRM) that fits all organizations, different models exist to describe the development and management of HRM (Ahmed & Kazmi, 1999).

Strategic Human Resource Management (SHRM) concepts and processes were developed in the late 1970s and 1980s to guide employees in a turbulent, rapidly changing and uncertain environment. Among other things, one of the most prominent factors in the history of Human Resource Management [HRM] is the scientific study by Frederic W. Taylor (1903), who proposed his three principles that, according to Jamrog & Overholt (2004), form the basis of modern Human Resource Management (HRM):

- Personnel appointed to the post must be physically and mentally fit for the job, and unqualified personnel must be weeded out.
- Human Resources must be trained to perform the specific tasks at hand.
- Human Resources should receive incentives or rewards.

The development of the automotive industry between 1950 and 1960, along with the growing interest in efficiency and performance, paralleled the introduction of a Human Resources Management (HRM) subsystem known as the Technicist Phase (Wood, 1995). During this time, despite knowledge and understanding of how people behaved within organizations, the human resource's function was still viewed as a record-keeping entity with operational characteristics (Jamrog & Overholt, 2004).

The transition from Human Resource to Human Resource Management [HRM] began primarily with concepts disseminated by his North American author in the 1960s and 1970s, and since then the term "HRM" has been increasingly adopted around the world (Ahmed & Kazmi, 1999).

In the 1980s, Human Resource Management (HRM) also evolved into strategic management of human resources. From the moment they begin to identify relevance to organizational effectiveness, their endorsements and roles within organizations (Ewing & Caruana, 1999) are justified and not seen solely as answers to legal questions.

This includes the development of theoretical frameworks, observations of specific contributions to organizational performance, and a High-Performance Work System (HPWS) consisting of selective recruitment and selection, and extensive employee development and decision-making participation. It contains a "bundle" of specific HR Practices that you configure. It is also believed that effective Human Resource Management (HRM) activities improve organizational performance. (Schuler & Jackson, 2005).

5. SOLUTIONS & RECOMMENDATIONS

Sustainable Development: The Role of Green Human Resource Management (HRM)

The era of Green Human Resource Management (GHRM) has arrived. Governments should seriously consider working with the private sector to create mechanisms to develop plans to promote and protect the environment. Organizations in the name of Corporate Social Responsibility (CSR) claim that they can give something back to the environment, but they go beyond their normal activities and incorporate more practices into their day-to-day operations that should be better implemented. These environmental commitments become part of this overarching Corporate Social Responsibility (CSR) (Mandip, 2012).

We emphasize the introduction of areas such as Green Accounting, Green Marketing, and Green Retail. Multinationals such as Toshiba, LG and Sony are the few brands committed to this mission. Toshiba's environmental report defines Green Management as an initiative aimed at continuously improving the basics of environmental management, such as - Development of Human Resources responsible for environmental activities, environmental management systems, environmental communication, and biodiversity conservation.

A Green Management System is a dynamic and on-going management arrangement of practices and procedures for the verification, prevention, and control of pollutants in nature (Abbaspour et al., 2006).

According to Denisi & Griffin (2009), HRM is a comprehensive set of management activities and tasks related to developing and maintaining a skilled workforce in a way that contributes to organizational effectiveness. HRM is a well-known and understood concept. Therefore, the author no longer focuses on confirming the meaning or basic understanding of this term. Green Human Resource Management [GHRM] is a relatively new idea that is gaining traction in recognition of the importance of environmental issues and the role that organizations can play.

Green Human Resource Management (GHRM) is not a separate concept. Sharma & Gupta (2015) also see Green HRM as a comprehensive and broad application of sustainability concepts to organizations and their people. Green actions can be incorporated into various steps and processes within your organization. Green Human Resource Management (GHRM) involves using Human Resource Management (HRM) to support the sustainable use of resources within an organization (Rani & Mishra, 2014).

Some organizations, such as those mentioned at the beginning of this white paper, present themselves as green and in order to benefit from this image of goodwill, build their image as green organizations working to a Green Human Resource Management (GHRM) framework which is less complex and may not require fundamental changes to the structure of the Human Resource Management (HRM) function, but at the same time has positive long-term effects. Green Human Resource Management (GHRM) becomes more fruitful, when it is adopted by organizations as part of broader sustainable development.

We reiterate that Green Human Resource Management [HRM](GHRM) initiatives have yielded tangible benefits such as increased efficiency, cost savings, employee retention and increased productivity. Organizations need to be proactive and choose practices that help them grow while empowering them to give back to society. It is important to note that the literature on Green Human Resource Management (GHRM) and its implementation is mainly available in developed countries and not in developing countries.

It is time for developing countries to recognize the importance of a greener, more sustainable environment and to address the growing problem of Global Warming. Green Human Resource Management (GHRM) can be a small but effective strategy as part of a larger mission. The Green HRM Model can be combined with the model proposed by Tang et al. (2018).

6. FUTURE RESEARCH DIRECTIONS

Green Human Resource Management (GHRM) is a very new topic in human resources and empirical research for evaluating and demonstrating best practices for organizations based on Green Human Resource Management (GHRM). Sustainability is a strategic issue for Human Resource Management (HRM) that is necessary for a company`s long-term access to resources needed for business in the future including human resources and long-term viability to maintain the social legitimacy of their commercial operations for which they need to control the risks from producing negative externalities on natural and social environments (Ehnert et al., 2014). This ultimately leads to the long-term sustainability and capability of organizations as well as resilience and sensitivity to external environmental change within those organizations that positively influence their efficiency and effectiveness. The paper has a limitation to underline that no specific organizational Green Human Resource Management (GHRM) analysis has been made. Future research could be made on some specific organizational aspects.

7. CONCLUSION

To summarize the findings, some key characteristics of a sustainability perspective in Human Resource Management (HRM) derived in this study and the related theoretical literature are listed in the following: Having a long-term approach and foresight, Creating organizational dynamics, Emphasizing on creating equal and non-discriminatory learning opportunities, regeneration and development of HRs, the implementation of appropriate policies to create work-life balance including flexible or floating working hours and distance working. Considering the interests of various stakeholders, considering the health and safety of human resources, and striving and taking responsibility for achieving and maintaining social legitimacy through the long-term value enhancement of investments to society and other stakeholders, takes advantage of limitations and turns them into opportunities through creativity and innovation to achieve sustainable competitive advantage and create corporate sustainability. In essence, Green Human Resource Management (GHRM) is emerging as an opportunity for HR to assert itself in a constant dynamic of interactions that offer competitive advantage and the potential to enhance organizational performance that can be viewed as an aspect of the Integrated Management Model of Legitimacy and Strategies for proving the status.

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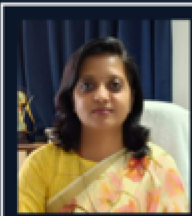

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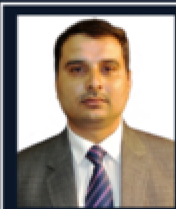

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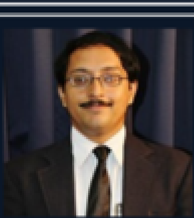

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