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A study on factors impacting work-life balance of employees in an organization

Ms. Princy Roy*
Prof. Divya Chowdhry**

Abstract

The need of the hour is to devise proper balance between work and life. Work plays a significant part in all our lives. Our earnings ensure that the lights stay on, there's food on the table and the rainy-day pot is full. It is no easy task to achieve work-life balance in today's unpredictable and fast-paced environment. Maintaining a healthy work-life balance is not only important for health and relationships, but it can also improve employee's productivity, and ultimately performance. There are different factors such as Remuneration, Company policies, working mode, work time flexibility etc. which are main drivers of work life balance of employees in an Organization.

In this report various factors affecting work life balance have been evaluated through a survey done on employees of Stryker, which is a US based medical device company. A brief introduction of Medical device companies has been provided in this report with respect to world as well as Indian context. Stryker has a Research & Development center in India. Survey is conducted with employees of R&D Centre in India. Based on the responses, impact of various factors was analyzed on a healthy work life balance. Additionally, impact on Employees working virtually due to Covid pandemic has been assessed in this study.

This study outlines list of contributing factors which can help provide great work life balance to Employees of an Organization.

Introduction

Work life balance is a common phenomenon that occurs to working professionals who are gainfully employed and managing their personal life as well. We all are engaged in number of roles every day and we hold several roles throughout our life. Life conflict occurs when we are unable to give our “many roles” required time and energy as a result of which participation in one role is made increasingly difficult by participation in another. So, there is need of work life balance.

The right balance is a very personal thing and will change for each person at different time of his or her live. For some people the issue is being able to get into work or find more work rather than having too much work.

A balance life is one where we spread our energy and efforts - emotional, intellectuals, imaginative, spiritual and physical – between key areas of important. For an employee, Work Life Balance would indicate an equilibrium between responsibilities at work and on his/her front. Work life Balance initiatives include those policies and plans of the organization which allow flexibility of work in terms of hours spent physically at the work place, those strategies which enhance quality of work life and help the employee to manage work family conflict. Hence strategies which help people develop control over when, where and how they work can be called as Work Life Balance Strategies. Some of the common practices adopted by employees in this regard are flexible timings at work, work from home practices,

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crèche and day care facilities, special leave to take care of family needs, help and leave for geriatric care. Research has indicated that such policies have several positive outcomes on the work life of employees. Many organizations view it as an effort which has to be made by the employee to balance his personal and professional life.
Following factors may affect work life balance of employees

- Working Time
- Working Mode
- Organization culture / Policies
- Impact of pandemic in work life balance
- Remuneration

Covid-19 has shown us a whole different level how an organization can work. Organizations such as Stryker which is "High Contact" organization, working remotely with most people (Non-Production) are working from home. Prior to pandemic nobody would have imagined that it's possible to work remotely as well in Manufacturing Organizations.In this study, we evaluated impact of Pandemic on Working Time, Working Mode, Employee Engagement, Employee Wellness on employees of Stryker Global Technology Centre
In the Pandemic, with organizations moving to virtual work scenario some of the major challenges are

- Increased Working hours
- High screen time

Which is draining energy of employees. People fail to decide when to start and when to stop due to nature of job. Organizations such as Stryker (Medical) are more focused to ensure employees do not burn out due to high screen time and stay engaged. For that companies are thinking of overall Wellbeing of Employees which includes Physical wellbeing, Social Wellbeing, Financial Wellbeing & Mental Wellbeing. Organizations such as Gallup are supporting with Pulse Surveys to know how employees feeling during pandemic and are they comfortable working in this scenario.
But working in virtual scenario, It has some inherent benefits as well

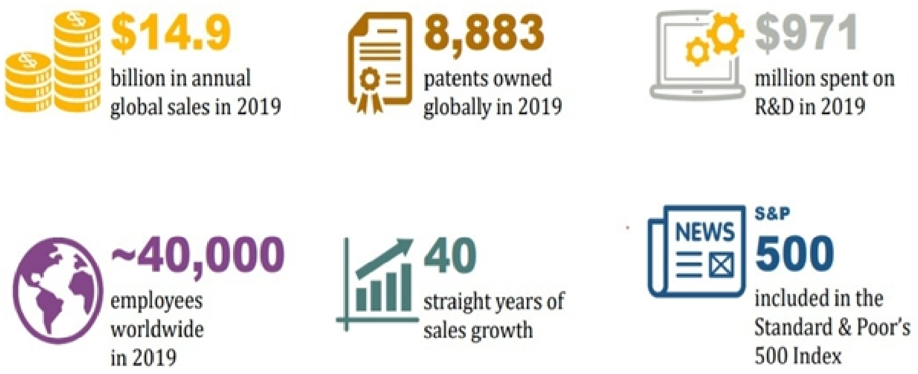
- Flexibility in working hours
- Saving Commute time (More time for work & family)
- More available time with Family (Having lunch / breakfast/ dinner together)

About Company

Stryker Corporation is a Fortune-500 American multinational medical technologies corporation based in Kalamazoo, Michigan. Stryker's product includes implants used in joint replacement and trauma surgeries, surgical equipment's and surgical navigation systems, endoscopic and communication systems patient handling and emergency medical equipment Neurosurgical, neurovascular and spinal devices as well as other medical device products used in a variety of medical specialties.
Stryker was founded in 1941 by an orthopedic surgeon, Dr. Homer Stryker, who always wanted to treat patients with instruments of advanced technology, so he invented new solutions. Stryker history is rooted in innovation and its future will be as well.

Company's Mission

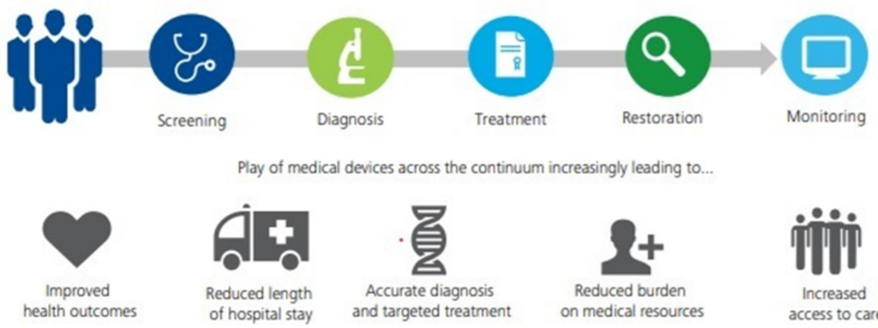
"Together with our customers, we are driven to make healthcare better"



Stryker has R&D center that is Stryker Global Technology Center, which was established in October 2006 in Gurgaon, India with the following objectives

- Develop capabilities to accelerate product development.
- Develop foundation for innovation in emerging markets.

Today, Stryker is a 550+ strong organization working across divisional and geographic boundaries. Their engineers come from mechanical, software, electrical and electronics backgrounds and work on variety of medical technology products and solutions. Company has fabulas policies on working hour, working mode, Maternity Leaves, Medical



insurance, Mobile & internet and higher education policies. which makes this comapany a great place to work.

Competition:

Literature Review

Much research had been done in the field of 'Work-life balance'.

Lavoie(2016) : As has been emphasized by a number of scholars, at present time, it is likely to have employees that demand the initiatives of work-life balance from the organization. Such demand has been closely linked to the increasing commonness of dual-career couples, family or dependent accountabilities, or the wish to devote more time to friends or enjoy leisure undertakings

Parida(2017) : Has mentioned that now a days that lives of employees, both male and female, is increasingly consumed of family and other personal responsibilities and interests. Therefore, in an effort to retain employees, it is increasingly important for organization to recognize this work life balance.

Kinman (2016) : The strongest factor of psychological distress and job dissatisfaction was related to work life conflict. He found out that over half of the academics surveyed complained that they have to regularly work at home during the evenings which cause stress.

Bailyn L, Fletcher J & Clob D (2019) : Asserted that majority of the employees reported that they remained preoccupied with work issues even after leaving the workplace and feel difficulties in sleep at home.

Problem Statement

From the literature review of the industry, it was found that work life balance need emphasis. This study would focus on how to improve work life balance specially in the current scenario of pandemic. In order to study this problem, Mid-level management employees of R&D department of Stryker Global Technology Centre were selected for this project.

Objectives of the Study

The objective of the study is to examine various factors which has an impact on the work and life of an individual employee which ultimately has an impact on the productivity and verify the same for medical devices industry (Stryker Global Technology Centre).

Following objectives were pursued through this study:-

- Evaluate the impact of Work Life Balance on the performance of an employee in the organization.
- To determine the factors affecting Work Life Balance of employees in an organization.
- Impact of pandemic (Covid-19) on changing work scenarios, in the organization. Ex:- Employee wellness, Employee Engagement and maintaining work life balance.
- Recommendation to improve the work life balance on the basis of data collected. Research Methodology

Type of Research	Quantitative and Qualitative research methodology
Population	Approx. 40,000 employees are working in Stryker globally. Out of which 550 are working in India.
Sample	Out of 550 employees working in India, 500 are working in R&D department for different division Orthopedics, Medical & Surgical (MedSurg) and Neurovascular & spine. More than 10% of employees of R&D department in Mid-Level management. Survey was shared with 80 employees out of which 64 responded.
Sample Size	Survey link was shared with 80 employees of Stryker India out of which 64 responses were received. Therefore, a sample of 64 employees of middle level management was chosen for the survey for research.
Sampling Method	The sample is selected through the Random Sampling method out of employees working in R&D department in India. Out of 550 employees working in India, Sample includes of 500 employees are working in R&D department of all 3 major divisions Orthopedics, Medical & Surgical (Medsurg) and Neurotechnological & spine

Observation & Findings

Based on the survey results we came to know that Employees who are managing their work life balance well are working more than required working hours. Approximately 80% of Employees working more than 50 hours against a required 42.5 hours per week. 81% of Employees of Stryker Global Technology Centre are able to do justice with both work & family obligations, which means they have good work life balance. 70% of Employees who are managing their work and home well, do work over weekends (from very often to once in two months) although working over weekends are not appreciated by Organization though employees felt flexible to meet company requirements. 92% of Employees of Stryker Global Technology Centre feel that Remuneration impacts work life balance. 95% of Employees of Stryker Global Technology Centre feel that Company policies/ culture plays very important role in providing great Work Life balance to Employees. 41 % of Employees of Stryker Global Technology Centre work between 50-60 hours per week, Around 34% work more than 60 Hours a week, Which indicates that avg population is contributing more against a required 42.5 hours per week. 19% of Employees of Stryker Global Technology Centre work once in 6 months. However, 23% of Employees of Stryker Global Technology Centre work almost every weekend. Also 31% of Employees of Stryker Global Technology Centre work once in 2 months. 55% of Employees of Stryker Global Technology Centre work over weekend for Company goals and requirements. However, 14% employees don't work over weekend.

70% of Employees of Stryker Global Technology Centre prefer Hybrid working mode where employees are given option to come office as needed and they can work from home for rest of time. 83% of Employees of Stryker Global Technology Centre prefer flexible working hours where they can start their day per requirements and availability of stakeholders. 59% of Employees of Stryker Global Technology Centre says that their work life balance has improved post Covid due to work from home & flexible working hours.

68% of Employees of Stryker Global Technology Centre says that their Mental & Economic wellness has improved during Covid as they knew company is taking care of everything for them.

Limitation of Study

This study was done on Employees of Multiple divisions of Research & Development Centre of Stryker such as Orthopedics, Medsurg, Trauma & Extremities and Spine. So, it can be leveraged for companies working in same model of Design center such Medtronic, BD etc. Employees participating in the study were of 4 years to 12 years of Experience. Study was specific Employee's thoughts & understanding on Work Life Balance and performance. Survey was done anonymously to avoid bias of Employees on overall study.

Recommendation

As Company policies directly impact Employees work life balance, it is very important to make Employee oriented policies which empowers the employees and work as delighters for the Employees.

Working over weekends can be exhaustive and impacts work life balance, however employees still work over weekends at times to achieve company objectives or to stay ahead of tasks coming over week. We should promote a culture to avoid work over weekends and Managers can play a vital role in the same.

If company takes care of Employees wellness (Mental, Economical, Physical etc.) then Employees can focus on their work and contribute to companies' growth as they would be more focused (what we saw in the survey for Stryker Employees)

Employees perform well in Flexible time environment hence, if possible, for the company to run in flexible time mode, it will boost the Morale of Employees

Employees prefer working in Hybrid model where they are not bound to visit office every day, they can work from home or office based on requirements

If Employees are able to manage their work life balance, they tend to contribute more for companies' success, as more than 75% of Employees are working more than 50 hours a week against a requirement of 42.5 hours as they feel more focused & connected.

Conclusion

Factors affecting Work Life Balance : Company Policies impacts the work life balance as approximately 95% of respondents mentions the same. 92% of employees who took survey mentions that remuneration has a direct correlation on Work life Balance. Factors affecting work life balance can be summarized as Company policies, Remuneration, working mode & working flexibility.

Employee performance with Work life Balance : Employees who are managing their work life balance well are working more than required working hours. Approximately 80% of Employees working more than 50 hours against a required 42.5 hours per week. Employees perform well in Flexible time environment hence, if possible, for the company to run in flexible time mode, it will boost the Morale of Employees. Employees prefer working in Hybrid model where they are not bound to visit office every day, they can work from home or office based on requirements.

Impact of Pandemic : Even during Covid pandemic, Employees felt more focused and engaged as company is taking care of employees through facilities like work from home, flexible working hours, medical insurance & sense of Job safety. Approximately 70% of Employees who are managing their work and home well, do work over weekends (from very often to once in two months) although working over weekends are not appreciated by Organization though employees felt flexible to meet company requirements.

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Sustainability and Fashion: Indian context

Dr. Naveen Arora*

Abstract

Sustainability has been a major cause of concern for environmentalists and the governments all over the world. Business and industries have been growing at the cost of increased carbon footprint. Sustainable practices consume existing resources while taking care of the needs and the requirements of future generations. Fashion industry is one of the most polluting industries that rarely follows sustainable business practices. Enormous amount of water and other resources are consumed in production and supply of apparels. Awareness for sustainability among consumers is at very nascent stage in India. In the most are cases, consumers show willingness to prefer brands that follow sustainable business practices. Few years back, some fashion brands tried create awareness for sustainability and came up with some campaigns. However, the consumers' response was not very encouraging. This study aims to explore the importance of sustainability for fashion brands and the challenges faced by the companies in practicing more sustainable business activities.

Introduction

Sustainability is considered as the use of practices that are responsible for future while consuming resources and performing day-to-day activities. Sustainable business practices consider responsible behaviour and activities while optimizing organizational goals. The importance of sustainability is growing as the world is witnessing serious threats to the environment and future generations. However, sustainability and profits in business do not always go hand-in-hand. Businesses see sustainable practices as less profitable and so they find it challenging to adapt sustainable business practices. In most of the industries, sustainability and profits are inversely related and so the profits decline as the companies try to adapt more sustainable practices.

Sustainability is challenging in this new era of consumerism. As marketers urge their potential and existing customers to purchase and consume more, practicing sustainable business practices is challenging. Marketers of durables as well as consumables equally face the issues related to declining profits due to sustainable business practices. In case of consumables, higher consumptions may lead to more pollution and exhaustion of limited natural resources. However, in case of durables higher consumption leads to more pollution from factories, consumption of limited natural resources and increased scrap.

In fashion industry, companies find it even more challenging to adopt sustainable practices. As these companies focus on buying new products just because old are out-of-fashion, industry growth and sustainable business practices see direct inverse relationship. Fashion is a polluting and resource-intensive industry, even as its future success depends on reducing its environmental and social imprint across the entire life cycle of garment production. That means reducing the impact related with cultivating and producing textile fibres, and establishing a foundation of good practices at all levels. It also means moving beyond focusing on only a few fibre types— typically cotton and polyester, or a blend thereof—and creating a portfolio of alternate fibres with low- resource intensity and potentially rich cultural traditions.

Balancing both perspectives results in what is generally termed as a sustain-centric

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worldview. The framework of fast and slow fashion has been used to evaluate and define the primary elements of a sustain-centric perspective within the fashion industry. In techno-centrism, people have the right to exploit nature—they are considered superior to nature, as viewed through an anthropocentric hierarchy with people at the pinnacle. In this view, nature is subservient and monetarily quantifiable—a commodity for the asking, with an implied assumption that economic growth and technological innovation preclude considerations of future generations and resources. In the techno-centric view, it is argued that the economy is a closed system isolated from nature, where exchange value circulates only between industries and households. People's wants are limitless; the corresponding ideal of a good life dominates.

Issues in Fashion and Apparel Industry

Many apparel brands outsource production from developing countries with low labor cost by exploiting the relative cost advantages and causing enormous effects both on their companies' home countries and abroad. From child labor in cotton manufacturing to forced labor in the clothing industry, the fashion supply chain eventually exploits the people who make clothes. Therefore, there is a increasing request of public opinion and customers for environmentally and socially responsible business practices. Fashion brands are supposed to take some serious steps towards environmental and ethical considerations.

Discussion

Agility requires apparel brands to build flexible supply chains and delivery models able to respond fast when the environment changes. Disturbances and instability are situations that are not going to stop. Successful apparel brands, in front of uncertainty in the competitive scenario, are acting flexibly to make sure that customer needs and wants are met as a primary objective. To be dynamic is becoming strategic to survive in the long-term and this implies the need for companies to update technologies and to interpret the new trends and to discover how these challenges can be transformed into marketing opportunities. As markets and consumer behaviors become more and more sophisticated every year, a successful company should be an “agile” organization, as they cannot delay decisions.

Most traditional fashion companies are still doubting about making collaborations with online giant e-commerce players, because they are afraid of losing some control over their brands. When brands agree on a partnership with online platforms, there is the need to sign conditions that can benefit both parties. Fashion brands are not able to ignore e-commerce anymore and so having a partnership with big online players could be a good way to survive in the marketplace and increase the probability to sell items in more countries and strengthening brand awareness at the same time. In the context of sustainability, with reference to the fashion sector the analysis of the concept of generation related to gender accepts importance and will be relevant for the description of the survey, the spotting of the hypothesis, and the subsequent descriptive and statistical analysis. Usually, it is useful to define the concept of “generation” when there is the necessity to show that being born in a certain period and having lived the crucial years of formation in a given cultural climate, characterized by particular historical events, leaves a trace on the ways of feeling, thinking, and acting of individuals.

In recent years, more and more attention has been paid to the issues of environmental sustainability by Governments, consumers, and companies. The textile sector has been the subject of great criticism connected to its environmental impacts and human health arising from residues of substances on products and production processes associated with it. Attention to the ecological dimension is expressed in reducing the waste of natural resources, reducing production costs, reducing global warming and paying more attention to the consequences of overpopulation, containing the toxicity of certain industrial products, and reducing air and water pollution. According to the analyses carried out, a positive trend clearly emerged for the future; the answers provided by respondents represent hope for an increase in the ethical approaches to business and in the adoption of sustainable strategies and practices in the fashion industry.

Conclusion

The pace of fast fashion, which has emerged in recent years as a new phenomenon with great impacts on the industry, magnifies problems, as it is causing high water consumption, high discharge of hazardous chemicals, an increase in waste, an increase in violations of human rights, together with bigger greenhouse gas emissions. Consumers are expecting transparency more and more across the entire value chain; they want to have more information about both the provenience of goods and the quality of materials used. Brands are responding to these challenges which have arisen from the demand side by trying to be more transparent, in many cases specifying the costs of materials, the mark-up, the costs of labor, transport, duties, and so on. Many cross-industry initiatives have served companies to identify more sustainable work practices across the product life cycle and several brands have publicly fixed sustainability goals and set standards for imports of fabrics, and they are promoting initiatives for improving innovations in the materials used for producing fashion items.

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Cognitive Computing: Concept behind Self Learning Systems

Mr. Ashish Mishra*

Abstract

Cognitive computing is the use of a sophisticated computational model to simulate human thought processes. Cognitive systems are built to operate on a human scale. Cognitive systems think with intention and interact with humans in an instinctual manner. These systems are motivated to comprehend concepts by dissecting expressions of an idea and then integrating the results with context and the likelihood that certain terms in the passage will be used in a specific way. Cognitive systems can learn from their experiences, detect correlations, form hypotheses, and recall and learn from their conclusions. Deep content analysis and evidence-based reasoning are used to speed up and enhance decisions, lower costs, and improve outcomes.

Keywords: Cognitive computing, Artificial Intelligent,Expert systems,Deep Learning.

Introduction

Human thought is awe-inspiring. The use of digital models to imitate the human thought process in complex settings where the solutions may be ambiguous and uncertain is known as cognitive computing. Expert systems, neural networks, robots, and virtual reality are all used in cognitive computing, and many of the same underlying technologies are used to power cognitive applications (VR). Models of cognitive computing provide a feasible path to artificial intelligence.

"Cognitive computing refers to self-learning systems that use machine learning models to simulate how the brain functions. Eventually, this technology will make it easier to create automated IT models that can solve problems without the need for human intervention.

The neural network is the brain of a cognitive system, and it is a key concept in Deep Learning. The neural network is a hardware and software system that is modeled after the human central nervous system to estimate functions that are dependent on a large number of unknown inputs. Individual technologies that execute certain tasks to aid human intelligence are referred to as cognitive computing. Essentially, they are intelligent decision-making aids that we've been working with since the dawn of the internet era. With recent technological advancements, these support systems simply use better data and algorithms to perform a better analysis of a large amount of data.

How Cognitive Computing Works

To offer appropriate replies, cognitive computing systems synthesize data from diverse information sources while balancing context and opposing evidence. Self-learning technologies such as data mining, pattern recognition, and natural language processing (NLP) are used in cognitive systems to understand how the human brain functions.

Using computer systems to tackle problems that should be solved by humans necessitates massive amounts of structured and unstructured data. Cognitive systems improve their ability to spot patterns and interpret data over time, allowing them to anticipate new issues and model alternative solutions.

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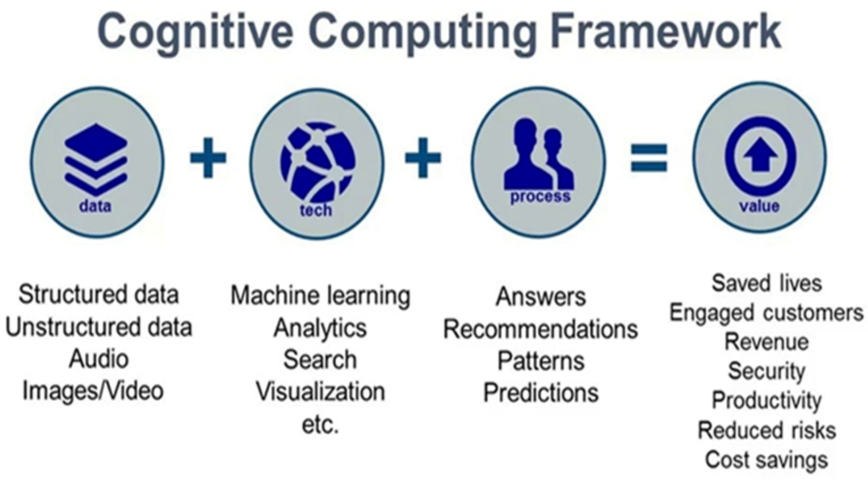
Cognitive Computing is a game-changer in terms of technology. It comprehends the language, recognizes things, text, faces, and situations, as well as voices, and communicates with humans and other machines without difficulty. The emotional and spiritual connection is a human quality that machines do not possess. They just comprehend the statement, but not the emotion that underpins it.

These characteristics would aid machines, such as Siri or Alexa, in better understanding humans. They have a limited understanding of the questions' social and cultural context. These personal assistants like Siri and Alexa are not the true example of cognitive Computing.

The pre-programmed responses were previously sent into their systems, but we will soon be able to speak with these assistants and receive intelligent responses. Examples areChatbots.

Cognitive computing can assess and provide recommendations based on a large amount of organized and unstructured data. This is something it can do in any industry, including healthcare, finance, law, and education. For example, it can analyze all the information of patient's records, journal articles, diagnostic tools, bestlegal practices, etc., and suggest the doctor's treatment decisions.It isn't that it will take over the doctor's role. Nonetheless, it will assist the doctor in making better decisions by analyzing the enormous amount of data accessible, which no human being can reasonably digest and store.

The goal is to make computers think more like humans so that they can assist us in making accurate judgments that will increase our chances of success and usher in a new era of expanded capabilities and knowledge.



The Features of a Cognitive Computing

The goal of cognitive computing is to develop computing systems capable of solving complex issues without the need for ongoing human intervention. The Cognitive Computing Consortium has advocated the following features for computing systems in order to apply cognitive function computing in commercial and popular applications:

1. Adaptive

This is the initial stage towards creating a cognitive system based on machine learning. The solutions should imitate the human brain's ability to learn and adapt to its surroundings. It is impossible to program the systems for a single purpose. In terms of data collection, understanding goals, and requirements, it must be dynamic.

2. Interactive

The cognitive solution, like the brain, must interact with all system aspects, including the processor, gadgets, cloud services, and the user. Cognitive systems should be able to communicate with one another in both directions. Using natural language processing and deep learning, it should be able to comprehend human input and offer relevant results. This feature has already been achieved by several experienced intelligent chatbots, such as Mitsuku.

3. Iterative

The system should "remember" prior interactions in a process and return data that is appropriate for the application at that moment. It should be able to define the issue by posing questions or locating further information. To ensure that the system is always provided with accurate data, this feature necessitates the careful application of data quality and validation procedures.

4. Stateful:

Provide information that is appropriate for a specific application at that instant of time.

5. Contextual

Contextual aspects such as meaning, syntax, time, place, proper domain, regulations, user profile, process, task, and objective must be understood, identified, and extracted. They may use a variety of data sources, including both structured and unstructured digital data, as well as sensory inputs (visual, gestural, auditory, or sensor-provided).

Cognitive computing is unquestionably the next step in the computer process, which was sparked by automation. It establishes a standard for computing systems to meet in order to reach the level of the human brain. But it has some limitations as AI is difficult to apply in situations with a high level of uncertainty, rapid change or creative demands.The quantity of data sources increases the problem's complexity. Aggregating, integrating, and analysing such unstructured data is difficult. A complex cognitive solution should have many technologies that coexist to give deep domain insights.

SCOPE OF COGNITIVE COMPUTING

The scope of cognitive computing consists of engagement, decision, and discovery. These 3 capabilities are related to ways people think and demonstrate their cognitive abilities in everyday life.

1. Engagement

Massive amounts of structured and unstructured data are stored in cognitive systems. These are capable of gaining in-depth domain knowledge and providing professional advice. The models build by these systems include the contextual relationships between various entities in a system's world that enable it to form hypotheses and arguments.These can be used to reconcile data that is confusing or even contradictory. As a result, these technologies are capable of having a deep conversation with people. A nice example of an engagement model is chatbot technology.

2. Decision

Cognitive systems decisions are constantly evolving in response to new information, outcomes, and actions. The capacity to trace why a certain decision was taken and adjust the confidence score of a system's answer is required for autonomous decision making.

3. Discovery

Discovery is the most advanced scope of cognitive computing. Discovery involves finding insights and understanding vast amount of information and developing skills. These models are built on deep learning and unverified machine learning. With ever-increasing volumes of data, there is a vibrant need for systems that help exploit information more efficiently than humans could on their own.

Cognitive ComputingVs. Artificial Intelligence

AI-The umbrella term for systems that make judgments based on data — is frequently used interchangeably with cognitive computing. However, there are distinctions between the two names that may be discovered in their respective uses and applications.
Machine learning, neural networks, natural language processing, and deep learning are examples of AI technology. Data is supplied into AI systems over a lengthy period of time so that the algorithms can learn variables and anticipate outcomes. Intelligent assistants, such as Amazon's Alexa or Apple's Siri, and driverless cars are examples of AI-based applications.

The main difference between cognitive computing and AI is its purpose.
The term "cognitive computing" refers to artificial intelligence systems that attempt to mimic human thought. Human cognition entails a real-time examination of the environment, context, and intent, as well as a variety of other factors that influence a person's capacity to solve problems.Machine learning, deep learning, neural networks, natural language processing, and sentiment analysis are among the AI technologies required for a computer system to construct cognitive models that resemble human thought processes.
Whereas AI uses algorithms to solve problems or find hidden patterns in data, cognitive computing systems aspire to create algorithms that imitate the human brain's reasoning process to address a wide range of difficulties as data and problems change.

The benefits of cognitive computing

Better data analysis:Cognitive systems excel at gathering, maintaining, and cross-referencing data in order to efficiently assess a scenario. The data-driven treatment backs it up. Somewhat of replacing physicians, cognitive computing practices robotic process automation to stimulate data analysis.

Efficient Processes:In real time, cognitive computing can study new models, spot commercial possibilities, and manage complex process-centric problems. Watson and other cognitive computing systems explain procedures, reduce risk, and change improved characteristics by evaluating large volumes of data..

Improved Customer Communication: By implementing robotic process automation, Cognitive Service can be used to improve customer communications. Customers can get contextual info from robots without having to communicate with other employees.

Conclusion

Cognitive computing has the potential to revolutionize every aspect of life, including how businesses operate and respond to the requirements of consumers, stakeholders, and employees. It enables businesses to become more information-centric, communicate with technology in the same manner that they interact with humans, and learn from previous interactions to improve over time. Machines and humans have discovered an unlimited number of ways to collaborate because to technological breakthroughs. More cognitive computing-based skills are predicted to emerge over time. The basic goal of cognitive computing is to use data and insights to improve the user's experience, values, and engagement.

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Role of Data Mining and its Importance in Machine Learning (ML) and Artificial Intelligence (AI)

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Mr. Anand Kumar Dixit**

1. Introduction:

Data Mining is a technique, which interacts with large data sets to extract the prior information. In data mining the needy/useful data is extracted from the data-pool (data pool acts a source where multiple varieties of data is stored). Data Mining is a step-by-step process of analyzing hidden chunks of data into meaningful information which is stored in data warehouse. It can also be determined as subset as a useful information in context to large data which acts as big-data or raw data. Now we take a example that there is a paragraph like:

"The computer is machine which can operate multiple operations at a time. Computer is the machine that can be programmed to automatically perform sequences of arithmetic or logical operations. A computer is a machine which stores and processes the information. Most of the computers dependent on a binary number system that uses 2 variables, 0 and 1, to execute tasks such as calculation algorithms, storing of data, and to display the information as output."

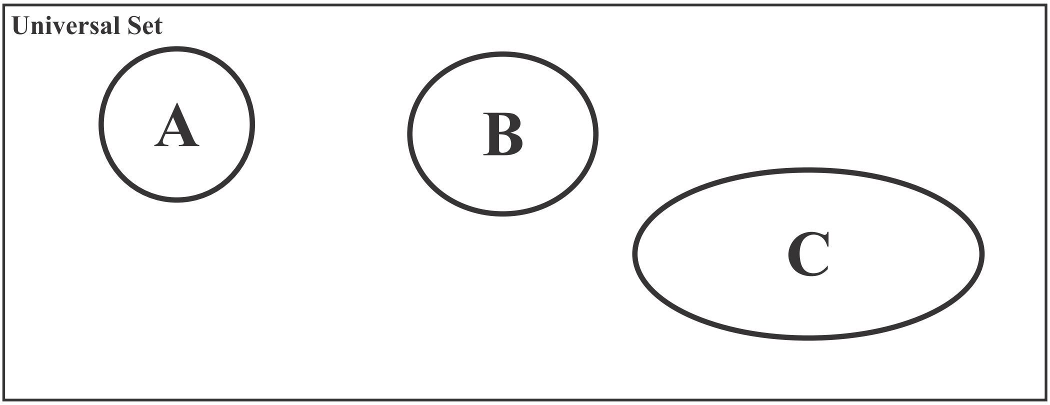
Now we want to get some information as from the above paragraph:

Q. What can operate multiple operations a time?
Ans. Computer.

Q. On how many variables the computer is dependent and names them?
Ans. Computer is dependent on a binary system and uses two variables i.e., 0 and 1.

From the above example we can understood that data is present in the raw form, but to get the useful and needful data we need data mining.

Let us take another example:



In above diagram, we can consider a Rectangle a Universal set 'U' and small circle as small sub-sets A, B, C. Here subsets A, B, C are the useful information present, and we need to extract it from the Universal Set.

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2. Uses of Data Mining

Data mining serves to discover new patterns of behavior among consumers. Data Mining is used for predictive and descriptive analysis in business: -

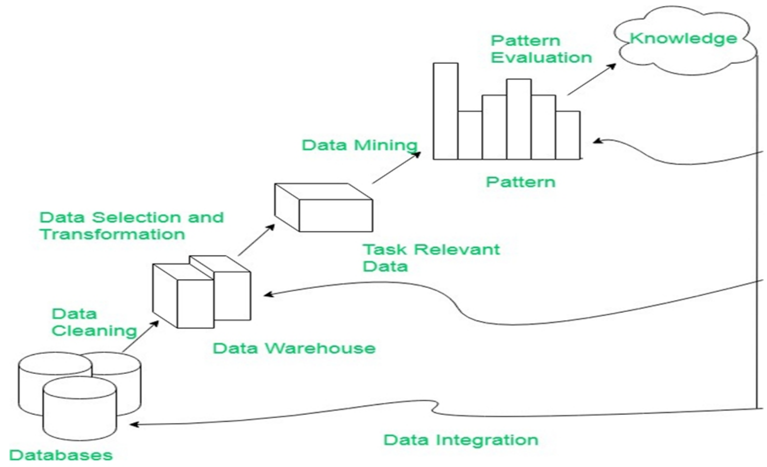
The derived pattern in Data Mining is helpful in better understanding of customer behavior, which leads to better & productive decision for the future use.

It is used for extraction of the hidden facts by the market approach, which is useful for the business but has not yet reached.

It is also used for finding the suitable area of the market, to achieve marketing goals and generate a reasonably best strategies and ROI.

It helps in reducing operational cost, by discovering and defining the potential areas where to investment and gain profits.

3. Steps involved in the Data Mining process



3.1 Data Integration: The extracted and filtered data is now merged according to the requirement or need. Heterogeneous data collected from the multiple resources are merged to combined in a common source which is going to be stored in Data ware house, for the further use using Data migration/synchronization/ETL tools.

3.2 Data Selection: The process in which relevant data is analyzed and decided or retrieved from the data collection, which can be through decision trees, queries, clustering, regression techniques;

3.3 Data Transformation: This is the process of transforming data into appropriate and required form, required by mining procedure. It is a two-step process consisting of Data Mapping and Code Generation;

3.4 Data Mining: It's a technique which is applied to extract knowledge based on given measures. It transforms relevant data into patters and decides the purpose of models, using summarization of the general characteristics or features of a target class of data.

3.5 Pattern Evaluation: Identifying strictly increasing patterns representing knowledge based on given measures in data mining, which finds interestingness score of each pattern and Uses summarization or Visualization to make data user friendly.

3.6 Knowledge Representation: It's a technique which is uses several tools to represent the data mining output or the results like graph, schema, report, sets of rules and in the form of relevant requirement according to the type.

4. Data Mining Techniques

Data Mining involves 7 techniques in general, which are: -

4.1 Statistics: - It's a branch of mathematics, which relates description and collection data, it helps in discovering Patterns and building Predictive Models.

4.2 Clustering: Clustering is one of the oldest and mostly used techniques for Data Mining. It is mainly used and distinguishes multiple types of data and collecting in the form of similar data that are similar to each other. It is also called segmentation.

4.3 Visualization: It is used in the beginning of the Data Mining process, which is useful for converting poor and raw data into good data letting different kinds of methods to be used in discovering hidden patterns and forms.

4.4 Decision Tree: It's a predictive model and it looks like a tree type structure that's why it is named as tree. In this technique, each branch is viewed as a classified and distinguished question or part. It removes the trees which are considered as partitions of the dataset related to that particular classification. It can be used in pre-processing of data and prediction work and exploration analysis.

4.5 Association Rules: Association Rules helps in finding the association between more than one items. It helps in determining the relations between the different variables in databases and discovers the hidden patterns in the data sets which can be used to identify the variables and the frequency of different variables that is present or seems with the highest frequencies.

4.6 Neural Networks: These are used for effective data mining to convert raw data into useful information. It looks for the presence patterns in large batches of data, and allowing businesses to know more about their customers which directs their marketing strategies, increase sales and lowers costs. This is another important technique that people use these days, it is often used in the early stages of Data Mining Technology.

4.7 Classification: In this type of technique, the collected data is classified according to their type with the help of certain sets of pre classified rules and samples to create model which can classify a large number of sets of data. This helped in extracting a defining the important part of information from the data sets. It is closely related to analysis technique of clustering the data according to its type, and uses N.N.S. (Neural Networks System) and Decision Trees to distribute data to its own data type.

5. Relationship Between Machine Learning & Artificial Intelligence with Data Mining

Machine learning (ML) is the study of computer algorithms, which works on past sample data sets and uses the most relevant and appropriates sets of data to perform activity in the best and optimized way and improve automatically through experience and by the use of data.

Artificial Intelligence is a branch of computer science which deals in building smart machines capable of performing tasks that typically require human intelligence. As we all know that the advancements in machine learning and deep learning are bringing a paradigm shift in almost every sector of the technology industry.

In fact, Data Mining is a very important part of Machine Learning and Artificial Intelligence, which is used to find the valuable patterns and trends that are hidden within vast volumes of data. Advanced Algorithms are used by both to uncover relevant patterns of data. Data mining is a tool, used to discover new, accurate and useful patterns or meaningful information for the ones who need it. The data mining technique extracts the useful data which is further used by the AI systems for creating solutions. Data mining served as the foundation of artificial intelligence.

So, Machine learning algorithms build a model based on sample data, known as "training data", in order to make predictions or decisions without being explicitly programmed to do so which are further used in AI. ML Algorithms and AI are used in a wide variety of applications, such as in medicine, email filtering, computer vision and speech recognition, where it is difficult or unfeasible to develop conventional algorithms to perform the needed tasks.

6. Conclusion

The fields of specific applications are aimed to extract specific information. Domain experts guide the system by considering user requirements and various reference parameters. Artificial Intelligence and Machine Learning, data mining and knowledge discovery in databases, is the nontrivial extraction of hidden, past, unknown and potentially useful information from data. AI and ML research obviously stands to gain from this greater exposure. So, both Machine Learning and Artificial Intelligence can further augment the ability of existing data mining systems to represent, acquire, and process various types of knowledge and patterns that can be integrated into many large, advanced applications,

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Cryptographic Salt Password Generator through Hash Functions
(A Small Change Has a Big Impact for Web Security/Web Server/ Cloud based Server)

Mr. Vishnu Kumar Shukla*

Abstract: -

Passwords is the most common essential security method to authenticate or verify a user's online activity such as, net banking, telecommunication, online-shopping etc. It is provide a powerful tool against unauthorized access to computer systems and information, and apply in multiple web enabled activities such online authentication or user verification through verification code or password relies on the authentication factor. Passwords suffer from two difficult problems: password theft and password cracking.

In this paper, we propose salted password agent, Salted Password is a new password hashing technique that utilizes combine a salt software repository and a browser alliance to provide a secure web logins with strong passwords agents. Cryptographic hashing function that provides users to low level-entropy secrete code and have them hashed to create high level-entropy secure pass code. Password Secrete Agent generates strong salted passwords by enhancing the hash function with a large random salted value.

The mechanism builds a clone of password with the help of a salt repository function. This technique offers some important aspect provide a much stronger security guarantee than existing hash function based mechanisms to offline hackers and it provides stronger protection against password cracking &password theft. A strong secrete code storage strategy is important to reduce data breaches that endangers the reputation of any organization. The final conclusion is that hashing is the foundation of secure password storage and find the path to means them by using secure hashing algorithm &complex passwords.

Keyword: -Hash Algorithm, Encryption, Array Algorithm, Salt technique, Salt Password, Cryptography, Hash Function, SHA, Web Security.

I. Introduction: -

The main important points of authentication scheme are password-based generation system in computing environment. A person uses multiple passwords for all the applications and systems that not only storing these passwords but also for securing the storage of these passwords. When organization deals with a huge number of users; it's very hard for them to create, maintain and distribute these passwords across the channel or network for authentication, authorization or personal purposes. Thus, passwords based verification system dominates many security difficulties into secured existing infrastructures. To address potential security concerns with the storage and distribution of passwords across the network, run against the cryptographic hash function to achieve the equivalent digest of the system and maintain a relationship between the user ID & password.

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What is Hashing in term of Web:-Web password generating hashing technique is a method of securing our web data in computing server environment. Web security is a practices, protocol, procedure, and ICT enabled technologies for assuring the reliability, predictable operation of the web server, other programs that communicate with web server and the surrounding internet infrastructure. The technique of storing password in a cipher text, plain text or is compromised through encryption method then there are possibilities of decrypting of password and stolen of data. To overcome these problems and enhance online password security, several techniques have been proposed. There are various methods or algorithm is used to secure password or secure data like cryptography, hash, salt, SHA256, SHA512. There are also some algorithms which is fail in market and we should not use this algorithms like MD5 (Merkl-Damagerd), SHA1 (Secure Hash Algorithm) and RipeMD (RACE Integrity Primitives Evaluation Message Digest) algorithm are considered as broken algorithm and we should not use it our new application code from cryptography. So it is a matter of fake login and loss of privacy in the system. Wherever the speed of MD5 is faster than the speed of SHA1, measure the hashing algorithm squarely; SHA1 provides more security than MD5 but is considered a broken algorithm and should not be used frequently in web servers or web security. To common drawback of these type algorithms are more possibilities hack data. To avoid this problem or secure data and password we use various methods like hash, salt, SHA256, SHA512, RipeMD, and Whirlpool are cryptographic hash functions can be used.
Hash function algorithms are used to convert passwords into string value called hash key values, hash codes, digests etc. A hash is also a one-way encryption that theoretically cannot reverse or derive a plaintext from the hash. Salted password hashing means adding or preparing a random string to the user's password before hashing. Salt can be added to the hash to make it more secure i.e. A random value of the string is either pre-fix salt or post-fix salt before hashing the password. Every password has a different salt. Even if the salt is stored on a database, cracking a password using a rainbow table would be very complicated because salted passwords are long, complex and unique. Salted hashes can be forced ruthlessly but the time taken is quite long. There are two salts one public and one private can also protect the password against online and offline attacks.

II. Protocol for Improving Password Security:-

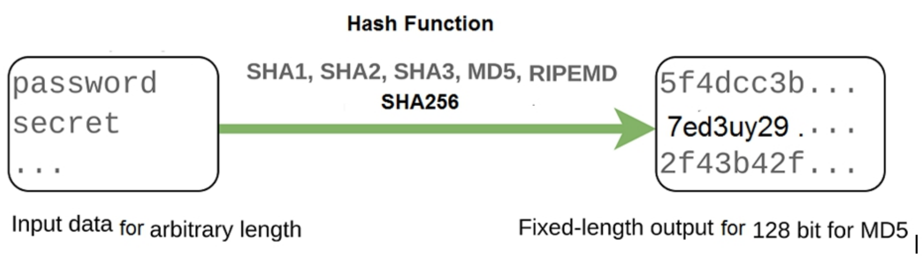
1. Selection of a Password
2. Salt Reuse
3. Short Salt
4. Hash Algorithm
5. Cryptographic Secure Pseudo-Random Number Generator (C.S.P.R.N.G)

III. Overview of Password Salt and Password Hashing:

A. Overview of Password Hashing Function? :- Hash algorithms are one way encryption method. They collect some amount of bits into a fixed-length and finger print key value that cannot be reversed. The system has maintained the property that if the input changes by even a little bit, the resulting hash is completely different. This is boundary wall for securing passwords i.e. The user want to store passwords in a form that secure them even if the password file itself is compromised at the same time, we need to be require or able to verify that a user's password is true.

The process of take a input converting it to a fixed-length output value by combining through a cryptographic hash function is called hashing, and the result generate is called the hash value in the example. The properties of cryptographic hash functions are a one-way encryption policy, and there is no other way of reducing the input value by converting from the output hash value, Because of its unalterable features, Cryptographic hashing is very useful for storing the password in the authentication server. This technique allows not only securing or protecting user's privacy but also allows the computing server to verify or authenticate user's login details storing the user's password. Example the cryptographic hash value of the word "mario" using hash ("mario = 5ddccd984217fe8d79858dc48 5b67d66489145afa78e8b27c1451b27 cc7a 2b In web forum, frequently use of cryptographic hash functions to implement password hashing. The main cryptographic hash function likes SHA256, SHA512, RipeMD, and Whirlpool.

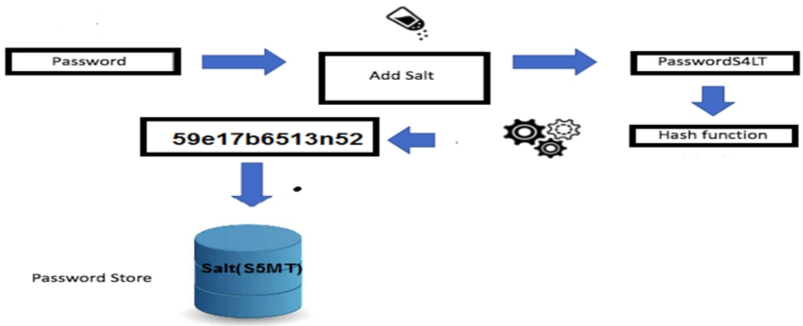
B. Overview of Salt Password Pattern/Technique: - Salt hash pattern take an important role in creating hashed passwords stronger comparison to general hash function. A cryptographic salt hash pattern is generating of random value, number or bits added to each password before finding its hash function. Salts password generate unique passwords even if two users choose the same password. Salt password helps user reduce hash table attacks by forcing hackers to re-initialize or compute them using the salt value for each user. This type of password pattern include to make it more complex for an attacker or hacker to break into a system with the help of hash-matching strategies because appending salt password to a hash protects a attacker from matching known data dictionary across the existing or entire system. The attacker has to generate every possible salt value, number or bits. In salting password, random salt is added to the jumbled password with length &complexity of the salt value directly affects the timestamp value taken for a rainbow table attack. If the salt password is longer and more complicated, the attacker or intruder's attack needs more time to succeed. For each new hash value we must use the new salt and for the intruder to generate a new data dictionary for each stored password in database.



IV. Cryptographic Secure Pseudo-Random Number Generator (C.S.P.R.N.G):- Cryptographic Secure Pseudo-Random Number Generator (CSPRNG) is a pseudo-random number generator methology (PRNGM) with special scientific features that make it randomly use in cryptography before generating salt password, and another thing also loosely known as a cryptographic random number generator (C.R.N.G) However, using simple Pseudo-Random Number Generator like rand () function is not recommended. This technique is used for generating random number only without any consideration of cryptography.

Cryptographic Secure Pseudo-Random Number Generator (C.S.P.R.N.G.) might require to some or all of these properties:

1. Appears random value.
2. Number is unpredictable in advance.
3. It cannot be change or reproduced after generation of salt value.



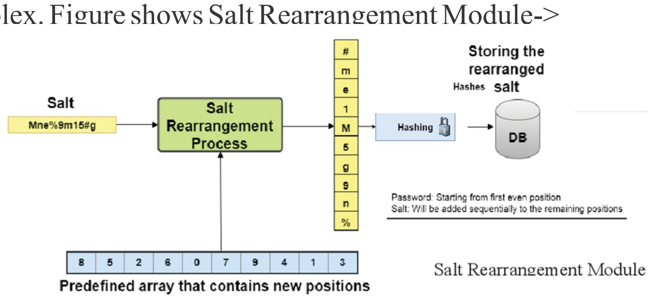
V. Interchange or Swapping Elements in an Array Algorithm: -

There are two major modules in array algorithm for swapping or interchange elements-

1. Hash input rearrangement module and
2. Salt rearrangement module.

A. Hash Input Rearrangement Module/Technique: - In this module is conducting for rearranging hash value with combination of password and salt value. This module is a combination of two processes, the first being the recursion process, which is getting the salt value and then reversing its elements to prepare the salt value for the next step or process. Hash input rearrangement step or Process, which receiving the reversed salt value and original user's password then it, will put the first character of the password at the first even position in an array and input the next character at the next even position. After finishing the password, it will sequentially add the inverse salt to the remaining positions. Then, the rearranged hash will be sent to the hash function to generate the input hash.

B. Salt Rearrangement Module/Technique:- The Salt rearrangement module is a technique based on predefined index/array for rearranging the salt value in advance of storing it in server database, which store the new index of the salt value. The main purpose of this module is rearranging salt value is to minimize the possibility of salt detection technique i.e. prediction of the cryptographic hash password will be very complex. Figure shows Salt Rearrangement Module->



Salt Rearrangement Module

VI. Technique of Generating Salt: In simple term, a salt is a random block of data or a string or bytes. Multiple Programming languages provide various random number generation object, classes or functions used to generate random numbers and collection of bits i.e. salt is a random cell area of data or a string but the main drawback of these classes &functions are not capable of generating cryptographically secure random numbers.

Cryptographically secure pseudo random number generator (CSPRNG) algorithm algorithms which are used by classes and functions in any programming language because the random value is completely dependent on data used to initiate the algorithm, and to be required which must produce statically random number and they must hold up against attack. Using the process of CSPRNG after generating original random value called as password salt value.

To generate salted hash password with the help of salt value as prefix to the added plane text of before calculating hash.

VII. Algorithm steps: for Generating Salt -

1. Select user Password from user.
2. Generating the salt value using appropriate Hash function.
3. Add or append salt to original password.
4. Generate salt hash password using trusted hash function.
5. Store salt password and salt hash password in database in web application.

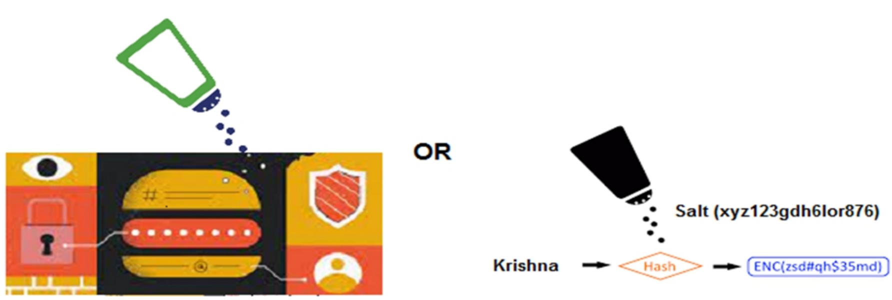
A good developer can prevent SQL Injection attack by hacker because many users uses same password for various web plate form for sign in the account. Here, we present a method to generate secure password hashes using salt technique in programming languages or algorithm like .NET and C++.

Example: The first table has two user-Id and password

User-Id	Password
Krishna	Abcdefgh321
John	Xyzabcde567

The salt value is 64 bit long. The hashed value is the hash of the salt value added to the cipher plaintext password. The salt value and hashed value are stored in combine form.

User-Id	Salt-Value	String to be hashed	Hashed value=SHA256 (password+salt value)
Krishna	EL1F1532E 5765	Abcdefgh321+ salt value	72AE25495A7891C406 22D4F493
John	79C03D03 40DF	Xyzabcde567+ salt value	B4B660AB670867E9C 732F7DE8



VIII. Implementation:- Generating Salt value USING .NET:- In .net programming language, Cryptography namespace offers cryptographic services i.e. secure encoding and decoding of function, string or data and perform many other operations such as hash function, random value generation, and secure message authentication. Cryptography namespace provide a RNG Crypto Service Provider class is used to generate high quality random number which can be used in cryptography. Using Secure Hash Algorithm (SHA-256) which generate 256 bit digests.

(A) Below line of code is used to generate salt password in .NET:

```
Private static string GenerateSalt (int maxsize)
        {/*Generate a cryptographic random value.*/
        RNGCryptoServiceProviderrng = new RNGCryptoServiceProvider();
        byte[]buff = new byte [maxsize];
        rng.Getbytes(buff);
        // Return a Base64 bit string representation of the random value.
        Return Convert.ToBase64String (buff);
        }
        Private static string GeneratePasswordHash (string pswrd, string salt)
         {
        String saltAndpswrd = String.Concat(pswrd, salt);
        // using Hash Algorithm for Hash Function in 256 bits Hash Algorithm (SHA256)
        HashProvider = new SHA256Managed ();
        byte[] hashsalt;
        hashsalt =HashProvider.CalculateHash(Encoding.UTF8.GetBytes(saltAndpswrd));
        // Generate hash salt password
        saltAndpswrd = Convert.ToBase64String(hashsalt);
        return saltAndpswrd;
        }
```

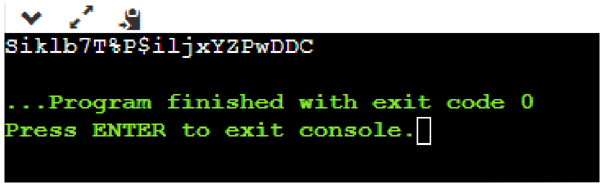
```
Enter password : Krishna
Salt Password Krishna is : 9a56ex7a==
Hash Salt of Krishna is : f2egjTz83hWo1jj7&94lk0pq23k


...Program finished with exit code 0
Press ENTER to exit console.
```

(B) Below line of code is used to generate salt password in C++:

```
Using namespace standard;
Static const char generate_salt[]
="ABCDEFGHIJKLMNOPQRSTUVWXYZ""!@#$%^&*""0123456789""abcdefghijklmnopqrstu
vwxyz";
Int string Length = sizeof(generatesalt) - 1;
Char genRandom()/* Random string generator function */
{
Return generatesalt [rand() % string Length];
}
Int main()
{
srand(time(0));
for(int i=0; i <20; i++)
{
cout<<genRandom();
```

```
}
return0;
}
Output:-
```



XI. CONCLUSIONS:

In this paper, we demonstrate a new password authentication based scheme on the hardness of hash function. This scheme requires verification table in order to authenticate users. The scheme also provides a timestamp that could block intruders from penetrating the verification phase wherein a time-change by an intruder fails the authentication step. Salt hash password technique protects the user & the attacker will now have to recalculate their entire dictionary attack for every individual or commercial account they're attempting to crack. But salt can only help against pre-built data-dictionaries, if attackers get access to our system and if uses brute force attack, than salt will not provide proper security. Finally, shows that the scheme can with stand common possible cryptographic attacks including impersonation attack. The scheme also allows users to freely change their passwords.

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Cyber Attacks Awareness and Prevention Method

Mr. Aman Kesharwani*

Abstract: -

In today's scenario it is very important to safe our information either online or in our computer from various cyber-attacks. The purpose of Cyber-attack awareness is to inform the users about security of data and the importance of identifying and taking, steps to avoid cyber attacks. Cyber-attack is the considerable factor if one wants to be able to protect oneself from various virus attacks. Without proper security, we cannot safe our data because the cyber-attacks come via offline devices like pen drive, CD as well as online Surfing.

Keywords: - Cyber Attacks, Cyber security Awareness, Prevention from Cyber Attacks

Introduction: -

Cyber-attack is a big issue in today's technology development because every user or System connects with internet in today's scenario, various malware or viruses harm our information, which is confidential or important to us. Cyber-attacks are more of an umbrella term, which covers various methods for attackers to cause malice over the internet. The cyber-attack is when someone gains or attempts to gain unauthorized access to a computer maliciously. Many users may not be aware with cyber-attacks and click on various online hyperlinks, which provide the computer's information or permission to hackers to use the User's system.

With the knowledge of cyber-attacks we can be safe from it. Under cyber-attacks segment various links, addresses or viruses comes that harm user's system, damage important file or confidential data. Cyber-attack is sent from a computer to another via network. Cyber-attack cannot be stopped completely, because when we stop few viruses or harmful links, then the hackers or attackers generate viruses or links. If we want that, our system is not harmed by cyber-attacks then we should install some software or use some steps like; Installing Firewall, Up-to-date our System Software.

Different Types of Cyber-Attacks: -

Cyber attacks are continuously increasing in time to time and are mostly done via Remote Access. It is important to understand that there is various ways to discover the virus or attack, the different type of Cyber Attacks are,

1. Malware
2. Phishing
3. Man-in-the Middle Attacks
4. Cross Site Scripting
5. SQL Injection Attacks
6. DDOS

1. **Malware:-** it's also called Malicious software, when this type of software enter in your computer system its send the replica of your confidential information to another via a computer network or destroy that file. It comes from Pen-drive or via internet network.

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2. **Phishing: -** Phishing is a cyber-crime its work to steal information like Credit Card/debit Card /Email or Face book password via network, mail, call or messages. When the hacker use the phishing attack most of the user cannot understand is it real or attacks by hacker.

3. **Man-in-the Middle Attacks: -** when we send our data from one system to another system via network then the attacker or hacker work in the between of the Sender & Receiver system and steal the information from the sender mail and change the mail or message and send to the receiver.

4. **Cross-Site Scripting: -** When attackers take advantage of vulnerability in a webpage to inject their own code. Means that time the code can steal the user information like cookies, password, sensitive data or ATM Code.

5. **SQL Injection Attacks: -** The purpose of SQL Injection Attack is to attack on website and steal the data by Cyber Criminal and also modify the data and gain the access of the computer.

6. **DDOS: -** A DDOS attack is used to hack websites and companies data servers. According to Dan Stone, these attacks work around the principle of overloading a computer system or server. Overloading the system leads to slowing down or even shutting down servers entirely

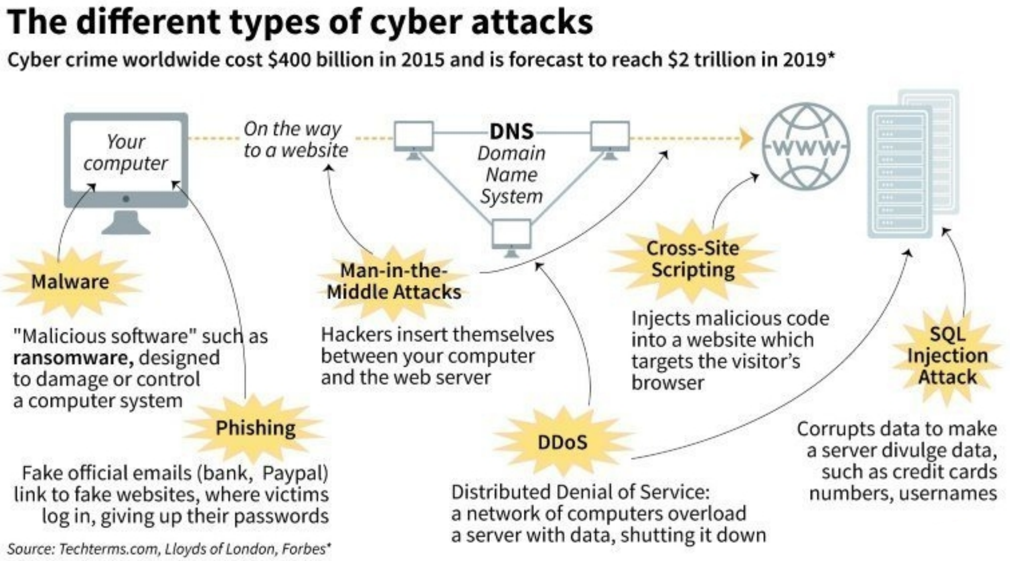

Figure:-1 (Different Types of Cyber-Attacks)

Methodology: -

In today's technology environment, various cyber-attacks and viruses harm the computer uses and steal or corrupt the information. There is various ways to protect our system from these types of attacks. According to Cisco 2014 report, out of all the web threat Java software continues to provide the highest vulnerability to give the chance to hacker to exploit user computer. The two other most popular vulnerabilities detected are: Flash and Adobe PDF document which is used a lot by lots of users. For threats such as Java exploits, the most significant issues facing security practitioners are how malware enters their network environment and where they should focus their efforts to minimize infection.

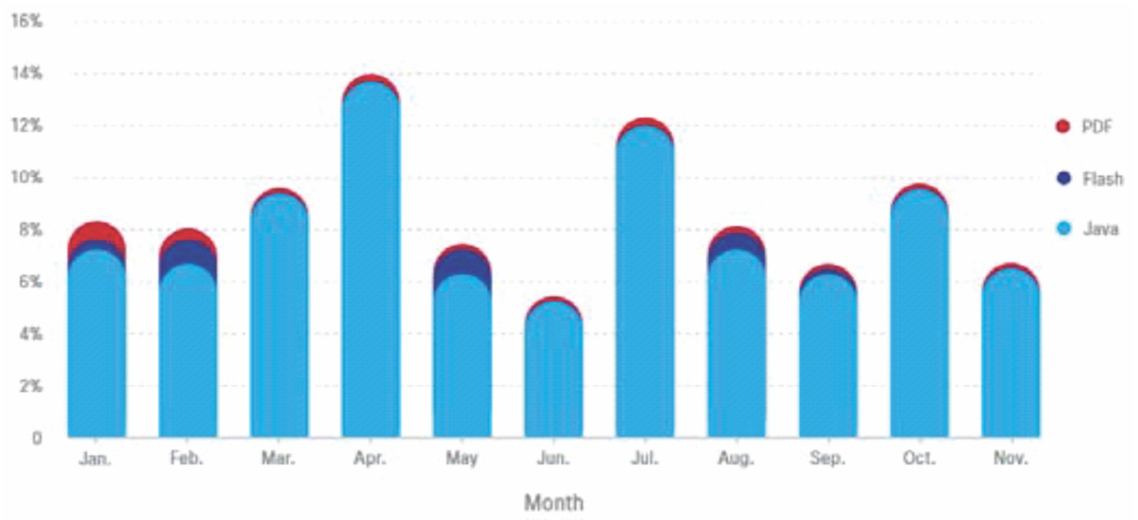

Figure:-2 (Cyber-Attacks in 2014 by CISCO Report)

Prevention from Cyber-Attack: -

We cannot stop the Cyber-attack but we can use some tricks and tips by which we can secure our confidential data and manage all the data in a proper manner. We can use following some tricks to secure our data: -

1. Choosing Strong Different Passwords
2. Keeping Your Information Confidential
3. Antivirus Software
4. Using Public Wi-Fi
5. Safe Browsing
6. Keeping Software up-to-Date
7. Firewalls
8. Data Encryption
9. E-mail Security

Choosing Strong Different Passwords: -User can use mix password like: alphabet (A-Z, a-z), Numeric (0-9) or also Special character (@, #, &). By using this type of mix password Hackers cannot break your password easily. User can also use separate password for different account or also for confidential data.

1. **Keeping Your Information Confidential: -**

   Never share your confidential information like Password, DOB, PAN No. ATM/Debit card pin Code or CVV No. with other persons. An attacker guesses the password to using this information and harms our data.

2. **Antivirus Software: -**

   Always use License Antivirus Software to protect your system and up-to date time-to-time. Use License Antivirus Software its keep the various Virus information and updated virus information by which we can secure the data.

3. **Using Public Wi-Fi: -**

public Wi-Fi is unprotected. Avoid transactions or registering for anything that requires any input of personal information. Remember not to allow any device, which has been a connected to public Wi-Fi network to remember these networks.

4. **Safe Browsing: -**

When surfing on internet then we can use such steps to save our data online. Here are some tips:

- Disable the use of remembering passwords for sites in all browsers
- Always Block pop-ups for all the browsers
- Set the internet zone security level
- Never open unknown e-mail attachments or respond to unknown e-mails
- Do not respond to online requests for asking personal identifiable information

5. **Keeping Software up-to-Date: -**

Always update the system software because every time the software updated its have some new security or new functionality by which our data is secure when any software demand to access your personal information via popup box then deny this option and never give any permission to system software.

6. **Firewalls: -**

Firewalls are applications that check for any information that is communicated from the user's computer with anyone else. Firewalls are guard against any unwanted communications from any source. Firewalls are an essential second layer of protection against any types of cyber-attacks. Firewalls may seem inconvenient for the reason of having to monitor all communications a computer makes. Most firewall show ever, can be configured to only check communications if the source is un-trusted. Home users can configure firewalls to the level of protection they want.

7. **Data Encryption: -**

Under this security method we protect our data to use the Encryption method by which hacker can steal data but cannot be used because of encryption security. When we use encryption method then our data convert from one form to another like plain text to cipher text. This method is necessary for every user to secure the data.

8. **Email Security: -**

Email security is essential security for today era because every data or conversation is comes under via the email and under this we use 2-step verification method or also add alternative email id to recover the password and use the combination of password.

Conclusion: -

In conclusion, it is very essential to educate home users on how to make better decisions and understand the risk associate with cyber-attacks. The key to deter cyber-attacks, with the information given we as a whole can reduce the effects of cyber-attacks. Governments across the globe need to take legal action and enact laws to protect citizens from these threats. Cyber-attacks are always changing and new methods can always be discovered. However, this should not deter users from at least enacting some steps to protect valuable information. User's knowledge, awareness and responsibility are the best defense against any kind of cyber-attacks regardless of government action. There are many different ways to protect data other than just the methods given. Being informed about these threats will hopefully reduce chances of such threats or even encourage others to discover preventive methods of their own.

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Green Entrepreneurship–A Path towards Sustainability

Mr. Pawan Omer*

Abstract:

Green entrepreneurship is the activity of consciously addressing an environmental social problem that need through the realization of entrepreneurial ideas with a high level of risk and reforms, which has a positive effect on the natural environment and at the same time is financially sustainable. Green entrepreneurship is different from an entrepreneurship.A business is an activity of buying and selling goods and services to make a profit i.e., having an income or revenue that is greater than costs. Entrepreneurs are naturally risk-takers in their business. Green entrepreneurs have high risks in their carrier to implement and innovate their business and make it viable in society both internally and externally. There are many risks in green entrepreneurship like environmental issues, societal issues, Policy framework, Political, Economic constrains etc. Green entrepreneurs should have the ability to dissolve all the difficulties that comefrom society and work tirelessly to overcome that. Green startups seek to influence technology, culture, diversityand feasibility to create eco-friendly products and to encourage social goods and services.A green industry business is one that uses sustainable materials to make its products or services. Green industry businesses aim toutilize as little water, energy, raw materials and other factors of production, as possible while cutting carbon emissions, or it find ways to utilize these materials in renewable and eco-friendly ways.

"The Green Entrepreneurshipis the business Opportunity/activitywhich can save the earth and make you money in a most sustainable and viable way"

Keywords-

Green entrepreneurship, Green industry, Business startups, opportunities.

Introduction:-

The first attempts to define and analyse the green entrepreneurship and describe its characteristics are in the 1990s.we can define a business,whose core business model addresses an environmental or social issue.It improves energy or resource efficiency, reduces greenhouse gas emissions, decreases waste or pollution, protects or restores ecosystems, promotes local culture,creed or supports various communities and reforms.

Green entrepreneurs should have the ability to overcome all the discrepancies that come from the society or environment,and uplift the same by the solution and goal orientation.Therefore in other words green entrepreneurship is a businesses and organisations or startups coming up with solutions that have a worldwide existence and can help save the environment. At the same time, they must make sure that the solutions will not have a negative impact, thataffects the business or culture both internally or externally.

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Source:-https://ied.eu/ (ThreePillars of Green Entrepreneurship)

Objectives of Green Entrepreneurship:-

Green Entrepreneurs have strong internal motivation and urge related to arousing sensitivity to environmental issues, they address an environmental, social problem, need consciously and this is at the core of their business activity, their business activities have a positive effect on the natural environment and at the same time have the mission to achieve the goal with sustainability.

1. Offering products or services the consumption of which leads to a change in the consumer's behaviour and perception.
2. It helps in reducing the negative effect on the environment both internally and externally.
3. Equalizing the ecological, economic, and societal goals of the company.
4. Introducing innovative ecological solutions to problems connected majorly with manpower production and consumption of products and services.
5. Developing business models and plans which, when applied to use, might lead to sustainable economic development.
6. Discovering new possibilities on the market in the form of startups, innovations, creativity which are in connection with the demand and new way of living of the society.

Advantages of Green Entrepreneurship:-

- Environment prosperity- Green entrepreneurship directly gives its benefits to the environment and its components, Many customers will come forward to support the green business as it does not affect the environment with this the green entrepreneurs can gain new end results and value additions to their organization.
- Enhanced brand image and increased competitive advantage –Green entrepreneurship enhances brand value and company image by the additions of various value add-ons and diversities.
- Better financial and investment opportunities-It provides large verities of investment opportunities in the form of venture capitalist and seed financing to gain profits and earn over the long period of time.
- Improved recruitment and retention of quality employees-people and entrepreneur's deliberately want to work for companies who are "doing the right thing at right time and cost". Sustainable practices have become an upcoming factor in determining what a company is made of and how ethical its employees are over theperiod.
- Environmental sustainability- Make an enduring commitment to environmental principles in its business operations. A sustainable business knows that if it depletes the

resources and the diversitythan sustainability cannot be generated, it cannot go on indefinitely for the future.

Challenges faced by Green Entrepreneurs in India:-

The Successful entrepreneurship takes dedication and innovative hard work, and there are many challenges and sacrifices that many business owners face, including opportunities especially at the beginning of the journey.
Considering to the above fact, following are the some challenges faced by Green Entrepreneurs:-

1. Lack of benefits in terms of financials, perquisites, and other requisite benefits.
2. Companies or individuals may intentionally or unintentionally make false claims& beliefs regarding the environmental friendliness and ecosystem of their products or services, which is normally known as "green washing.
3. Also another challenge that all entrepreneurs and budding entrepreneurs face is to get their business funded by angel investors or seed financers.
4. Green entrepreneurship makes it hard to maintain social connections sometimes.
5. Needless to say, starting out as green entrepreneurship is a stressful endeavour.
6. Motivated workforce-another challenge is to find employees,whichcan be a difficult task for a young first-time entrepreneur depending upon the nature,calibre and zeal to work.

Conclusion:-

The green entrepreneurs should have enough capital and resources to manage the business effectively & efficiently, as it may costs higher than other business manufacturing processes so the green entrepreneurs have to be prepared in all aspects to put the effort highly to attract the customers and make them purchase the green products to maintain sustainability. The decision-making process is quite difficult, as they have to come out with the decision that does not cause any environmental impact on the society, humans, and diversity.
"Thus it can be concluded green entrepreneurship as a new type of commerce and startup, which maintains the equilibrium of profits and natural resources and might possibly solve ecological, social and natural problems throughout its business activity.

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Enhancement of cyber security implementation in the current online scenario

Mr. Bhasker Mishra*

Mr. Adarsh Srivastava*

Abstract :-

In today's corporate working structure a lot of work has been done online for each and every field of a corporate organisation. All the decision making and growth of organisation is completely dependent on this internal organisational data and information.

In every organisation, it has definite need for security of their database and internal processing. This leads to implement security measures to secure data. Cyber security help in different ways by using several methods and techniques to enhance security of the network and systems used in corporate organisation. Encryption has been used by militaries and government to facilitate secret communication. It is now commonly used in protecting information or to protect data in transit, for example data being transferred via networks, mobile phones, wireless microphones, Bluetooth etc.

Encryption is an important tool but not sufficient alone to protect the confidentiality of messages, but are other techniques are need to be created to protect integrity and authenticity of information.

Keywords: Symmetric key, Asymmetric key, Encryption, Hashing

Description

Cyber security is the practice of securing networks, systems and any other digital infrastructure from malicious attacks. Cybersecurity is important because it protects all categories of data from theft and damage. This includes sensitive data, personally identifiable information, protected health information , personal information, intellectual property, data and governmental industry information systems.

A cyber threat is a malicious act that seeks to damage data, steal data, or disrupts digital life in general. Cyber attacks include threats like viruses, data breaches, denial of services etc. Threats can be in the form of malware, phishing, trojans, Man in middle attacks, SQL injections, Ransomware etc.

Why security?

Have you ever wondered what does brakes do?. They give us freedom to unleash our real speed they give assurance they'll stop us whenever required it's more like back up to our speed. Yes it's all about perception and it's same with security.

Method for securing data

To protect data and information in our organisation we can use Encryption. Encryption is the process of encoding information. This process converts the original representation of the

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information, known as plaintext, into an alternative form known as ciphertext. Encryption requires the use of a cryptographic key.

The two main kinds of encryption are symmetric encryption and asymmetric encryption.

In symmetric encryption, there is only one key, and all communicating parties use the same (secret) key for both encryption and decryption. But in symmetric encryption, As there is only one key in the symmetrical encryption, this must be known by both sender and recipient and this key is sufficient to decrypt the secret message and we need to send that secret key to the receiver which again leads to the same problem.

So for this reason we needed more s ecured version, so Asymmetric key was created. Increased data security is the primary benefit of asymmetric cryptography. It is the most secure encryption process because users are never required to reveal or share their private keys. Asymmetric Encryption uses two distinct, yet related keys. One key, the Public Key, is used for encryption and the other, the Private Key, is for decryption. As implied in the name, the Private Key is intended to be private so that only the authenticated recipient can decrypt the message.

But with asymmetric encryption also we can face many flaws like public key encryption in this method is slow compared with symmetric encryption, Its public keys are not authenticated also it risks loss of private key which might beirreplaceable. Asymmetric encryption uses longer keys than symmetric encryption in order to provide better security than symmetric key encryption. it contributes to slower encryption speed as well as there will be too many keys.

Hashing and Hashing plus

So in order to enhance better and fast encryption we can use Hashing functions. Hashing has its own predefined functions but we can modify those functions and include mod 26 in that so we can get a secured and encoding or decoding of messages within 26 alphabets. If in case still any how hackers try to decode the message so we can use Hashing plus. In this we will use normal hashing function but to make it's decoding tougher we can use some fix symbols which can be anything which is going to be add in hashing function and give resembles to the decoder that it is a part of it but actually it isn't. which can be a confusion for a hacker but an advantage for us.

Eg:- Hashing function = (i2 + i+1)mod 26 where i=0 for a ,i=1 for b…………

Text=abc answer = acf

Hashing plus function = (i+1)mod 26 + tuv

Text = abc answer = bcdtuv

Advantages of Hashing and plus version

- Provides better encryption
- Easy and fast to encrypt as length range from 50-100 words.
- Tough to decode compared to normal encryption.

Benefit of better encryption

Cloud computing

Yes you heard it right we can make a set up which is similar to cloud computing and can work exactly same with greater security and lesser amount to be paid and more space available to users. The securities which was earlier provided by the other cloud companies and we were paying for that it goes out of the equation.

Conclusion:

With the use of enhanced encryption techniques the data can be protected in better ways and the transmission of data may also be secured within the public network or in any private network.

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Bhasker Mishra,

How To Design Effective Employee Retention Strategies

Ms. Priya Chopra*

Abstract

Retention of employees is an important function of the HRM. Unless there is a deliberate and serious effort from the management towards this direction, the competitors in the industry are likely to attract and snatch the talent already nurtured in the company over a period of time. Careful strategies for crafting and implementing employee retention strategies are a skill and should be given top priority by the management. This paper discusses the issues and solutions to address this problem with a case study. . The results of the study indicate that retention strategies should be carefully worked out for different groups and levels.

1.0 INTRODUCTION

One of the greatest challenges in today's business world is to stay up to speed in a time of technological growth. Fundamental changes are taking place in the work force and the work place that promise to radically alter the way companies relate to their employees. As we hurl ahead at an increasing pace every field, employee retention becomes a concern for all companies at the present strong job market. There are a great number of employment opportunities for talented professionals. It has been found out that, higher the skills of the employees, the greater the demand for their services. Hiring and retaining good employees have become the chief concerns of nearly every company in every industry. Companies that understand what their employees want and need in the workplace and make strategic decisions to proactively fulfil those needs will become the dominant players in their respective markets. Hence employee retention is a very important issue that organisations must tackle.

Employee retention is a process in which the employees are encouraged to remain with the organization for the maximum period of time or until the completion of the project.

Employee retention can also be considered as a business management term referring to efforts by employers to retain current employees in their workforce.

2.0 LITERATURE REVIEW

The term "employee retention" first began to appear with regularity on the business scene in the 1970s and early '80s. Until then, during the early and mid-1900s, the essence of the relationship between employer and employee had been (by and large) a statement of the status quo: you come work for me, do a good job, and, so long as economic conditions allow, I will continue to employ you. It was not unusual for people who entered the job market as late as the 1950s and '60s to remain with one employer for a very long time, sometimes for the duration of their entire work life. In the 1970s and later, as job mobility and voluntary job changes began to increase dramatically, the status-quo model began to fray substantially at the edges. Employees found themselves with a new phenomenon to consider: employee turnover. As organizations began to feel the impact of employee turnover, so a matching management tool began to be developed- employee retention. (McKeown 2002)

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Parrott (2000) believes that today's employees pose a complete new set of challenges, especially when businesses are forced to confront one of the tightest labour markets in decades. Therefore, it is getting more difficult to retain employees, as the pool of talent is becoming more-and more tapped-out.

During the last decade, employee retention has become a serious and perplexing problem for all types of organization's. Managing retention and keeping the turnover rate below target and industry norms is one of the most challenging issues facing businesses. Employee turnover continues to be one of the most unappreciated and undervalued issues facing business leaders. This stems from several important assumptions and conclusions about turnover:

§ All stakeholders involved in the issue, including Human Resource managers, underestimate the true cost of employee turnover.

§ The causes of turnover are not adequately identified in most organisations.

§ The solutions to reduce turnover are sometimes mismatched with the causes of turnover and do not generate the desired results.

§ Many of the preventive measures for turnover are either overkill or they often miss the mark altogether.

§ A process to measure the success of retention solutions and place a monetary value on managing retention does not exist in most of the organisations. (Phillips and Connell 2003)

2.1 EXTERNAL DRIVERS OF THE RETENTION CRISIS:

Major changes have occurred in organisations, both internally and externally, making this issue more critical today than in previous years. Unfortunately these changes will only worsen the crisis in the future.

a. Economic growth
b. Slower growth of job seekers.

INTERNAL DRIVERS OF THE RETENTION CRISIS:

Internal changes in organisations operate in concert with the external influences to drive excessive turnover. Internal issues include structural changes within the organisation and changes in employees' attitude about work and their employers.

a. Lack of company loyalty
b. Desire for challenging and useful work
c. Need for autonomy, flexibility and independence
d. Need for performance based rewards.
e. Need for recognition for participation, accomplishments, and contributions
f. Desire for different kind of benefits
g. Need to learn new skills
h. Career growth in all directions
i. Desire to be on the leading edge
j. Desire for competitive compensation
k. Need for a caring, supportive environment

l. Need for work/life balance

Employees are an organisation's business. And those who manage businesses both large and small face stiffer competition domestically and abroad. In fact, retaining good workers is the tipping point between success and failure for many organizations. According to Gregory P. Smith, author of "Here today, Here tomorrow: Transforming your workforce from High Turnover to High Retention", the following attributes are essential to a high-retention organisation:

- § Clearly defined organisational direction and purpose
- § Caring management
- § Flexibility in benefits
- § Open, straight forward communication
- § Energetic and enthusiastic work environment
- § Effective performance appraisals
- § Rewards and recognition
- § Training and development
- § Paying competitive wages
- § Respecting employees
- § Retention bonuses

Every organisation needs to work on the retention strategies by focusing mainly on the employee and his contribution to the organisation.

2.2 IDENTIFYING EMPLOYEES TO BE RETAINED:

According to Suzanne Dibble employees who have "talent" and are "contributors" are to be retained. They are the employees who make a difference to the organisations:

- Customers
- Other employees
- Shareholders/boards/constituents These employees demonstrate:
- Breadth as well as depth of technical/functional knowledge.
- Customer service
- Creativity
- Continuous learning
- Flexibility
- Self-direction
- Commitment to the organization's success

2.3 RECRUITEMENT AS A RETENTION STRATEGY:

Retention begins long before an employee's first day on the job. In the twenty-first century employment world, organisations must look at the foundations of retention through the eyes of potential employees. They are the customers for their jobs. Job descriptions, recruitment, selection, and orientation are the foundations of retention. If a good foundation is not prepared for the employees, organisations cannot expect them to stay. Employees will no longer endure what they do not like in their employment situation. They have the power in the knowledge of their abilities and confidence in their value in the marketplace. With greater loyalty to their career and their skills than to their employer, they move on. (Dibble 1999)

2.4 RETHINKING RETENTION MODEL

In most organizations, operations management drives sales, service, quality, and safety, with various staff departments providing tracking, training, and other services. And the responsibility of handling Employee retention is usually taken up only by the HR. With this setup, organizations fail to tackle the problem of employee turnover. Keeping this in mind, Richard P. Finnegan came up with the 'Rethinking Retention Model'.

The core ingredient of the Rethinking Retention model is the shared responsibility of operations management and staff support for increasing employee retention.

2.5 PRINCIPLES OF THE RETHINKING RETENTION MODEL:

a) Employees quit jobs because they can.
Workplace demographics leave employees with too many job choices, even in down economies. Exit surveys and various studies indicate employees quit because of supervisors, pay, career development, and for "better opportunities," While each of these exit reasons are true at one time or another, the main reason employees quit is because our economy and society make it easy for them to do so.

b) Employees stay for things they get uniquely from you.
These things might be tangible, like being able to walk to work, a four- day/ten-hour schedule, or reduced prices for company products. Or they might be intangible things like learning new skills, working with a trusted supervisor, or performing a service that helps others. Some of these stay reasons may come via policies or programs, whereas others occur during the course of doing work. Retention happens when employees receive things, they value that they believe they cannot get anywhere else and these things create reasons for them to stay.

c) Supervisors build unique relationships that drive retention...or turnover. Researchers Marcus Buckingham and Curt Coffman in their book, "First, Break all the rules" say: "the talented employee may join a company because of its charismatic leaders, its generous benefits, and its world-class training programs, but how long that employee stays and how productive he is while he is there is determined by his relationship with his immediate supervisor."

Supervisory relationships are unique levers that deeply impact employees' stay/leave decisions. Some employees stay for supervisors, some leave because of them, and some just avoid them.

2.6 CASE STUDY: PROFILE OF PETROLEUM INDUSTRY

The origin of oil & gas industry in India can be traced back to 1867 when oil was struck at Makum near Margherita in Assam. At the time of Independence in 1947, the Oil & Gas industry was controlled by international companies. India's domestic oil production was just 250,000 tonnes per annum and the entire production was from one state - Assam.

The foundation of the Oil & Gas Industry in India was laid by the Industrial Policy Resolution, 1954, when the government announced that petroleum would be the core sector industry. In pursuance of the Industrial Policy Resolution, 1954, Government-owned National Oil Companies ONGC (Oil & Natural Gas Commission), IOC (Indian Oil Corporation), and OIL (Oil India Ltd.) were formed. In 1959, for marketing of petroleum products, the government set up another company called Indian Refineries Ltd. In 1964, Indian Refineries Ltd was merged with Indian Oil Company Ltd. to form Indian Oil Corporation Ltd. in the 1960s, a number of oil and gas-bearing structures were discovered by ONGC in Gujarat and Assam. Discovery of oil in significant quantities in Bombay High in February, 1974 opened up new avenues of oil exploration in offshore areas. During 1970s and till mid 1980s exploratory efforts by ONGC and OIL India yielded discoveries of oil and gas in a number of structures in Bassein, Tapti, Krishna-Godavari-Cauvery basins, Cachar (Assam), Nagaland, and Tripura. In 1984-85, India achieved a self-sufficiency level of 70% in petroleum products. In 1984, Gas Authority of India Ltd. (GAIL) was set up to look after transportation, processing and marketing of natural gas and natural gas liquids.

After Independence, India also made significant additions to its refining capacity. In the first decade after independence, three coastal refineries were established by multinational oil companies operating in India at that time. These included refineries by Burma Shell, and Esso Stanvac at Mumbai, and by Caltex at Visakhapatnam. Today, there are a total of 18 refineries in the country comprising 17 in the Public Sector, one in the private sector. The 17 Public sector refineries are located at Guwahati, Barauni, Koyali, Haldia, Mathura, Digboi, Panipat, Vishakapatnam, Chennai, Nagapatinam, Kochi, Bongaigaon, Numaligarh, Mangalore, Tatipaka, and two refineries in Mumbai. The private sector refinery built by Reliance Petroleum Ltd is in Jamnagar. It is the biggest oil refinery inAsia.

By the end of 1980s, the petroleum sector was in the doldrums. Oil production had begun to decline whereas there was a steady increase in consumption and domestic oil production was able to meet only about 35% of the domestic requirement. The government in order to increase exploration activity approved the New Exploration Licensing Policy (NELP) in March 1997 to ensure level playing field in the upstream sector between private and public sector companies in all fiscal, financial and contractual matters. This ensured there was no mandatory state participation through ONGC/OIL nor there was any carried interest of the government.

To meet its growing petroleum demand, India has investing heavily in oil fields abroad. India's state-owned oil firms already have stakes in oil and gas fields in Russia, Sudan, Iraq, Libya, Egypt, Qatar, Ivory Coast, Australia, Vietnam and Myanmar. Oil and Gas Industry has a vital role to play in India's energy security and if India has to sustain its high economic growth rate.

Future of the Petroleum Industry:

The future of Indian petroleum industry has good potential but it needs developmental activities in this sector to strengthen itself. The world at present is experiencing a lot of changes of mammoth proportions. The Petroleum Industry in India is one of the harbingers of huge economic growth. The arena for business has now gone global since trade boundaries are fast dissolving. These developments present India with tremendous opportunities in the future to be one of the major players in the export of petrochemical intermediaries.

India has to compete for conventional energy sources and for that there must be developmental activities for energy efficient buildings and vehicles. The main problems with the Petroleum Industry in India are related to infrastructural developments. The lack of proper storage facilities, enhancements in refining capacities, and fluctuating import prices plays important role in the development of the sector. The target of improvement for the growth of the economy for India should be in the area of the petrochemical sector. The need for intermediary products for the manufacturing of the end use products is an important sector to tap in. With the per capita consumption for the petrochemical products in India being low and the production of these products being high, India may become one of the leading exporters of such intermediary products.

The future of Indian petroleum industry depends on:

- Demand for petroleum is growing in leaps and bounds.
- Shifting focus to more production of olefin - ethylene, propylene, butadiene.
- Price and availability of crude oil and gas as feedstock would still be critical factors.
- The demand of the end products would affect the demand of the intermediary products.

2.7 Petrochemical Company Limited (PCL)

The Petrochemical Company Limited PCL (name disguised) was established to be a world class refining and petro-chemicals company with a strong emphasis on productivity, customer satisfaction, safety, health and environment management, corporate social responsibility and care for employees.

QUALITY POLICY:

QMS is diligently followed throughout the Refinery (wherever applicable). Having definite quality objectives, continual improvement projects, conducting regular corrective actions and preventive action sessions have helped to achieve improvements in the system. Internal audits for individual departments, management review meetings, awareness programmes for employees, collection and review of customer feedback and customer meet programmes are other steps to confirm to standards.

HR POLICIES AND PROCEDURES:

- Attracting competent personnel by providing an attractive compensation package comparable to the industry practice.
- Building up and nurturing a work culture that would emphasis productivity, cost consciousness & commercial orientation team work, work discipline dedication to and

pride in the company and common commitment to corporate priorities.

- Encouraging high performance through a system of appraisal and rewards based on an objective assessment of employees contribution.
- Developing its human resources through in house and external programmes so as to progressively update skills and attitudes which in turn would propel performance excellence.
- Providing welfare and infrastructure amenities of good quality to all employees both at workplace and in the housing complex.

ENVIRONMENTAL POLICY:

- Achieve and sustain excellence in petroleum refining by producing quality products in an eco friendly and safe environment by adopting sound / efficient technologies.
- Continuously strive for prevention of pollution through efficient use of resources such as raw materials, water and energy.
- Continual improvement of environmental performance by minimizing air emissions, odour and effluent generation and better management of solid and hazardous wastes.
- Comply with all statutory, regulatory and other applicable requirements.
- Promote environmental responsibility and propagate the policy among all employees, concerned contractors and suppliers. Policy is also available to the public.
- Sustain and promote green belt.

3.0 RESERCH DESIGN

3.1 OBJECTIVES OF THE STUDY:

- To identify the retention strategies practiced at PCL.
- To evaluate the effectiveness of the existing retention strategies.
- To evaluate the benefits that PCL receives from the retention strategies.
- To assess the satisfaction level of employee with existing retention strategies.

3.2 SIGNIFICANCE OF THE STUDY:

- This paper would focus on the importance of making employee retention, an organisation-wide issue.
- It would identify the retention strategies, their effectiveness and if they need to be modified.
- It would also identify the benefits that PCL receives by implementing these strategies.

3.3 LIMITATIONS OF THE STUDY: The scope of the project is limited to:

- Current employees of Petrochemicals Company Limited.
- Data collected from the exit interviews conducted for the employees who left the organisation over the years.

3.4 RESEARCH QUESTIONS AND INVESTIGATIVE QUESTIONS:

1) **What are the retention strategies at PCL?**
   - Is employee retention considered an organisation wide issue at PCL?
   - Are the retention strategies implemented throughout the organisation?

2) **How effective are the retention strategies at PCL?**
   - Has the attrition rate changed with the implementation of these strategies?

3) **What are the benefits that PCL receives by implementing these strategies?**
   - Has the implementation of these strategies contributed to the organisation's overall growth?

4) **Are the employees satisfied with the existing retention strategies?**
   - Is there a need to modify the existing retention strategies?

3.5 METHODOLOGY

The methodology adopted for the study included a mixed approach of both descriptive and exploratory. A sample size of 10% of the total sampling frame was included in the study. Convenience sampling was adopted to get the responses from the subjects, which include employees of PCL at different levels. A questionnaire was used for capturing the data which consisted of about 12 variables both independent and dependant variables. The research tool was piloted before administering on the subjects for the purpose of validation.

4.0 DATA ANALYSIS AND RESULTS

Among the respondents, 67 percent felt that the retention strategies in PCL were attractive and 78 percent opined that they were effective. About 69 percent felt that the management should revisit the exiting strategies since they were framed at least 5-6 years back. The respondents in the middle and top management (more than 75%) indicated that new dimensions should be included in the retention strategies. Nearly 85 percent respondents opined that they benefitted from the retention strategies currently being followed in the company. Most of the employees (nearly 70%) were graduates and a few (about 8%) were post graduates.
The study revealed that about 87 percent of the respondents felt that employee retention was considered an organisation wide issue at PCL.
The study indicated that the retention strategies were implemented throughout the organisation.

4.1 FACTORS THAT AFFECTED EMPLOYEE RETENTION:

The following are some of the factors that affected employee retention:

- Shifting markets
- Demands for specific skills
- Business conditions

- Demographics
- Lifestyle changes
- Technology issues
- Trends in work life decision as employees needs change

4.2 EMPLOYEE RETENTION STRATEGIES:

Employee Retention Strategies' goal is to help organizations see the underlying contributors to retention and make the essential changes to build lasting, sustainable retention-rich cultures.

The basic practices kept in mind in the employee retention strategies are:

- Hire the right people in the first place.
- Empower the employees: Give the employees the authority to get things done.
- Make employees realize that they are the most valuable asset of the organization.
- Have faith in them, trust and respect them
- Provide them information and knowledge.
- Keep providing them feedback on their performance.
- Recognize and appreciate their achievements.
- Keep their morale high.
- Create an environment where the employees want to work and have fun.

These practices can be categorized in 3 levels: Low, medium and high level.

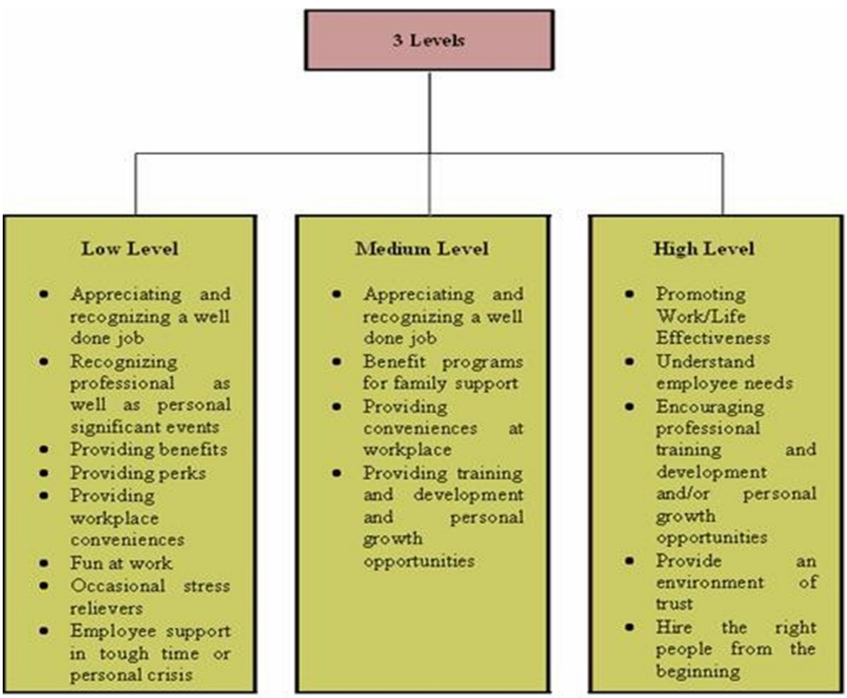

Figure: Three Levels of Employee Retention Strategies - Low, Medium and High

Employee Retention Strategies are broadly classified under the following:

1. Compensation
2. Environment
3. Growth
4. Relationship
5. Support

Compensation

Compensation constitutes the largest part of the employee retention process. The employees always have high expectations regarding their compensation packages. Compensation packages vary from industry to industry. So an attractive compensation package plays a critical role in retaining the employees. Compensation includes salary and wages, bonuses, benefits, stock options, allowances, insurances, vacations, etc.

Environment

Employee retention is about managing people. If an organization manages people well, employee retention will take care of itself. Organizations should focus on managing the work environment to make better use of the available human assets. People want to work for an organization which provides:

- Appreciation for the work done
- Ample opportunities to grow
- A friendly and cooperative environment
- A feeling that the organization is second home to the employee

Growth

Employees work in an organization to achieve their personal goals as well. Organizations cannot keep aside the individual goals of employees' and foster organizations goals.
Employees' priority is to work for themselves and later on for the organization. If he's not satisfied with his growth, he'll not be able to contribute in the organization's growth.

Relationship

"Employees leave their bosses, and not their jobs", this is a very common saying, which is true considering the fact that relationship with the management and the peers becomes often the reason for an employee to leave the organization. The management is sometimes not able to provide an employee a supportive work culture and environment in terms of personal or professional relationships.Support
Lack of support from management can sometimes serve as a reason for employee retention. Supervisor should support his subordinates in a way so that each one of them is a success. Management should try to focus on its employees and support them not only in their difficult times at work but also through the times of personal crisis. Management can support employees by providing them recognition and appreciation. Employers can also provide valuable feedback to employees and make them feel valued to the organization.

4.3 BENEFITS OBTAINED DUE TO EMPLOYEE RETENTION STRATEGIES

The study revealed the following are important benefits obtained:

1. The Cost of Turnover: The cost of employee turnover adds hundreds of thousands of rupees to an organization's expense. While it is difficult to calculate the exact cost of

turnover, industry experts often quote 25% of the average employee salary as a conservative estimate.

2. Loss of Company Knowledge: When an employee leaves, he takes with him valuable knowledge about the company, customers, current projects and past history. A lot of time and money is spent on the employee in expectation of a future return.
3. Interruption of Customer Service: Customers and clients do business with a company through the employees. Relationships are developed that encourage continued sponsorship of the business. When an employee leaves, the relationships that employee built for the company are severed, which could lead to potential customer loss.
4. Turnover leads to more turnovers: When an employee terminates, the effect is felt throughout the organizations. Co-workers are often required to pick up the slack. The unspoken negativity often intensifies for the remaining staff.
5. Goodwill of the Company: The goodwill of a company is maintained when the attrition rates are low. Higher retention rates motivate potential employees to join the organization.
6. Regaining efficiency: If an employee resigns, then good amount of time is lost in hiring a new employee and then training him/her and this goes to the loss of the company directly which many a times goes unnoticed. Adding to this is the fact that expecting the same performance from the new employee cannot be assured.

4.4 SUGGESTED EFFECTIVE RETENTION STRATEGIES

The following strategies will help organisations improve retention, productivity, and all other important metrics.

a) STRATEGIES FOR SUPERVISORS:

Hold supervisors accountable for achieving retention goals.

Supervisors won't achieve any other goal you assign them if they lose their best performers, so make them accountable. This is the first strategy which should be implemented immediately. Telling supervisors on all levels that they now have retention goals moves your retention efforts from HR into the line management of your organisation, which is where nearly all retention activity occurs after hiring.

Develop supervisors to build trust with their teams.

For every employee, communication, recognition, and development all fall behind trust. The type of trust being discussed here is personal trust: trusting a supervisor to provide feedback and tools for your success, assess your work objectively, tell you when you need to improve, and present your achievements objectively to others. This is an employee knowing that his supervisor “has his back” and really want him to succeed.

b) STRATEGIES FOR PEOPLE MANAGEMENT PROCESSES

Narrow the front door to close the back door.
This focuses on how hiring techniques can greatly influence retention. These techniques must be used to check if the applicant can do the job, and if they will stay with the organisation.

New hires must align with who you are—your jobs, values, and standards—and give clear indications they intend to stay.

Script employees' first 90 days.

First impressions predict how long employees stay, so early activities must be scripted to present your company in ways that are both positive and truthful. The first 90 days is the glue-binding period, as employees stay for things they believe are uniquely available from theorganisation. Having made the decision to join the organisation, they are now verifying if their decision was right based on their early daily experiences.

Challenge policies to ensure they drive retention.

Blow the dust off last decade's thinking and drive your rules toward retention. Improve pay, healthcare, and work flexibilities for the employees. Organisations that understand the full cost of turnover are wise to offer benefits and benchmark themselves against other employers to ensure they are competitive or better.

c) STRATEGIES FOR TOP MANAGEMENT:

Calculate turnover's cost to galvanize retention as a business issue.

Money speaks louder than numbers and percent's. So in order to move the retention discussion into the boardroom and other important decision-making arenas, the cost of turnover must be translated into bucks.

Drive retention from the top, because executives have the greatest impact on achieving retention goals.

Think about how your company manages sales, service, quality, and safety and then build those same methods for retention. Most of the organisations look to HR to design and implement retention solutions. As a result, retention initiatives are driven from the side of the organisation chart rather than from the top. Employee retention is a management team game; hence executives from all the departments in the organisation must be involved.

5.0 CONCLUSION:

Having a good effective and manageable employee retention strategy in any organisation is absolutely necessity and at the same time is inevitable. The strategies discussed in this paper relate to supervisors, people management processes and the top management. Carving, crafting and implementing these strategies involves serious commitment from the management and especially executives at the corporate level. This would certainly yield rich dividends in productivity at the end in the long run.REFERENCES

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A Study of Investors Awareness and Perception about Investment in Mutual Funds

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Abstract

Indian Investors have a number of choices to invest their savings. Mutual Funds provide one of the options of investment to the individual investors. Though Mutual Fund investments are riskier as compared to post office deposits and bank fixed deposits they provide the benefits associated with the stock market investment to the investors. Mutual Funds pool money from various investors and invest those pooled amount in the stocks and shares of various Companies through stock market according to the investment objectives of the mutual funds. A common investor might not have the resources and expertise to invest in the share market .This is where the mutual fund houses come into the picture. They pool the money of numerous small investors and the experienced fund managers try to give maximum return to these small investors. There are various types of mutual funds. Some of these are equity funds, debt funds, balance funds, tax-saving funds, index funds etc. Index funds are those schemes of mutual funds which invest in the same shares indexed in the particular index in the same weightage of the shares forming the index. The paper studies the investors' awareness and preference of mutual funds as compared to other investment options. The study further examines the investors' awareness about various schemes of mutual funds including that of index funds.

KEY WORDS: Mutual Funds, Investors' perception, Investors' Awareness, Investors' Preference, Investors' Behavior, Objectives, Challenges

1. Introduction-

Indian Financial Services Sector has a plethora of instruments for the investors. With the advent of new age technology and due to the easy access of internet it has become easier for investors to get information regarding various investment options. Mutual funds provide an opportunity to small investors to participate in the capital market and to obtain benefits arising out of it with their limited funds and without taking much risk as compared to direct investment in the stock market. Pooling of assets is the key idea behind forming these investments companies. Each investor has a claim to the portfolio established by the investment company in proportion to the amount invested. These companies thus provide a mechanism for small investors to pool their funds to get benefits of large scale investing.

The success of the mutual funds depends upon the awareness and confidence level of the investors. The investment pattern varies with the age, gender, education and occupation. The present study is conducted with the objective of assessing the awareness level of the investors. The study was conducted in different cities with a sample size of 100 respondents. The study observed high level of awareness about mutual funds among the investors. It was observed significant difference in the awareness level the investors belonging to different education background and gender. The investors prefer safety of the principal amount, regular returns, long-term growth, income and tax benefits, etc. the mutual fund schemes have been designedbased on the preferences of the investors, return on various instruments and changing profile of the investors. The success of the mutual funds depends upon the confidence level of the investors. The schemes areframed and conceptualized by the top management of the

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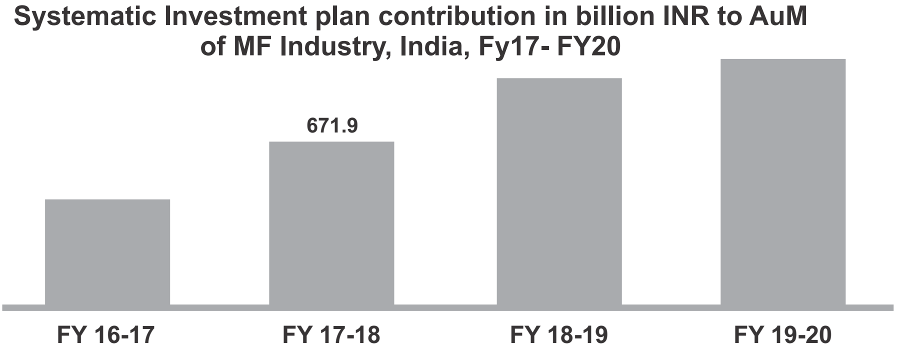
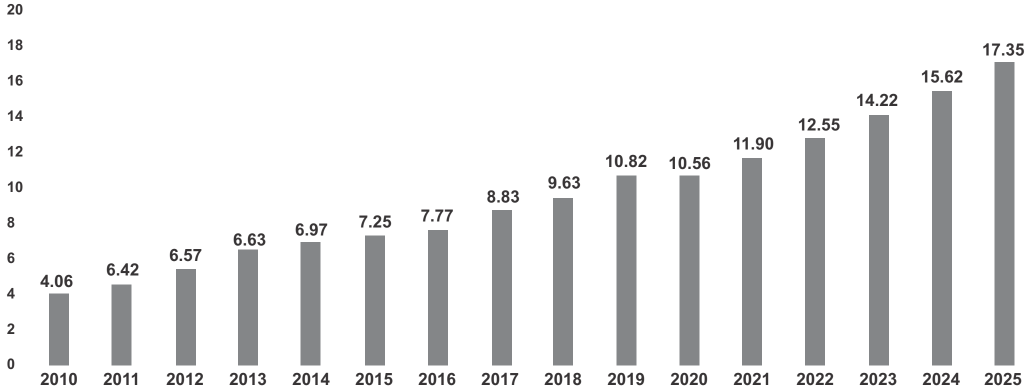
mutual funds and marketed by their branches and through the agents. Mutual Funds are one of the fastest growing industries in India. The asset under management (AUM) of the Indian MF Industry has grown from Rs 5.05 trillion as on 31st March 2008 to Rs 22.86 trillion as on 30th June, 2018, around four and a half times increase in a period of 10 years. Average Assets under Management (AAUM) of Indian Mutual Fund Industry for the month of June 2018 stood at Rs 23.57 lakh crore. Total AUM for tax saving schemes of top 20 mutual funds stood at Rs 40534 cr as on 31st Jan 2019 with an average of Rs 2133.37cr. Reliance Tax Saver Fund was the leading AMC with a corpus amounting to Rs 9799cr invested under ELSS scheme during this period.

Graph 1: GROWTH OF MUTUAL FUNDS IN 2021



Source: https://www.google.com/search?q=growth+of+mutual+funds+2021&tbm

Graph 2: GROWTH IN ASSETS UNDER MANAGEMENT



2. Literature review

Hari k and Ayappan (2014) explained with the current Indian financial market being more complex and evolving, all players have an important role to deliver for mobilizing the industry. Middle class families dominate the Indian capital market and have an attitude of taking less risk. Mutual fund considered as an important investment for the population. Through a descriptive nature of the research design the author gave specific insights into the major market of this study. Priyanka Sharma and PayalAgrawal (2015) in their study made an attempt to understand the effect of demographic factors in mutual fund investment decisions. The study reveals that the investor's perception is dependent on their demographic profile. Investor's age and occupation has a direct impact on investor's choice of investment. The study further reveals that the female segment is not fully tapped. The research also reveals that the liquidity, high return and safety are some factors which have a high impact on investment decisions. Desigan G, Lalaiselvi S and Anusuya L (2006) conducted a study on "investors awareness and preference about the investment in mutual funds "it was found that female investors generally hesitate in investing in mutual funds due to lack of their knowledge and awareness. D. Rajasekar (2013) The study was conducted with a sample size of 100 respondents with an objective to know about the investor's perception on their profile, income, savings pattern, investment patterns and their personality criteria. The study was concluded by taking into consideration various parameters involved in investors decision making keeping in mind investors perception towards mutual fund investment. Vipin Kumar &PreetiBansal (2014)this research paper has focused attention on various parameters that highlights investor's perception on mutual funds. It was studied that the scheme of mutual fund investment were not known to many of theinvestors as still theinvestors rely upon the traditional pattern of investments like investment in fixeddeposits and PublicProvident Fund(PPF). As most of the mutual fund investors used to invest in mutual fund for not more than three years and used to quit from the fund as they were not giving desired result as stated in the objective during inception of mutual fund scheme. It was also found from the research that maximum number of mutual fund investor's has to depend upon their brokers and agent to invest in mutual fund. D. Senthil and Dr. M. Syed Zefar (2005)had published an Article "Mutual Fund Investors Perceptions and realities". The main aim of the study is to find out the investors perception and realities in the current scenario and measure extend of satisfaction derived by customer towards the performance of mutual fund and willingness to invest in future despite the current prevailing condition of the market. The main purpose of the study is to identify the factors which make them invest and to retain in mutual fund. The study says that investors prefer mutual fund than share because high risk is associated with shares.

Madhusudhan V Jambodekar., (2006)39 conducted a study to assess the awareness of Mutual funds among investors to identify the information sources influencing the buying decision and the factors influencing the choice of a particular fund. The study reveals among other things that income schemes and open ended schemes are more preferred than Growth Schemes and Close Ended Schemes during the prevalent Market conditions investors look for safety of tax saving, for the children's education, safety, purchase of assets and wealth creation in the order of importance; brokers are the first source of information and advertisements are the second source of information through which investors get to know about Mutual Funds/Scheme. Rathnamani (2013) explained that many investors are preferred to invest in mutual fund in order to have high return at low level of risk, safety liquidity. The world of investment has been changing day to day, so investor's preferences toward investment pattern also changed. In the demographic profile, most of the investors are willing to invest only 75 percent in their annual personal income (below 10 lakh) around 19.8 percent of investors belong to age range of 31 to 40 years. In this study investors are willing to take moderate and low level risk; most of the investors belong to moderate investment style.

3. Objective of the study

- To study and analyse the awareness level of investors of mutual funds.
- To know the satisfaction level of investors regarding mutual funds.
- To study the investors perception about mutual funds.
- To study the cause of apprehension for not investing in mutual funds.

4. Research methodology

The study undertaken is of exploratory in nature.

SOURCES OF DATA COLLECTION-

Primary data has been collected through the structured questionnaire consisting mainly of the close-ended questions. Secondary data have been collected from the internet, reference book and magazines.

QUESTIONAIRE-

A questionnaire is a schedule consisting of a number of coherent and formulated series of questions related to the various aspects of the under study. In this method a preprinted list of questions arranged in sequence is used to elicit response from the informant. The questionnaire has been framed by covering almost the key concepts to bring about lucid results. The questionnaire was structured in three parts-

Part 1- of the questionnaire covers the details regarding the personal details of the respondents.

Part 2- covers the questions related to the awareness of the mutual funds

Part 3- covers the questions related to the unawareness of the mutual funds.

SAMPLE SIZE

Sample size refers to the number of items selected from the universe to constitute a sample. Sample size for this study is 100.

SAMPLING PLAN

Target population- mutual fund investors
Sample size- 100
Sampling technique- simple random sampling
Area of research : Kanpur city

TOOLS FOR ANALYSIS-

- Simple aggregation method
- Weighted average method

4. Findings

- The data concludes that majority of the respondents are male (58%) who invest in mutual funds.
- The data reflects that majorly the respondents who are below 30 years of age do not invest in mutual funds because they prefer high return and are willing to take high risk and respondents who are between the range of 41-50 and above 50 prefer to invest in mutual funds because of its low risk property.
- The data also shows that the respondents who invest in mutual funds are mostly graduate (48%).
- The data reflects that majority of the respondents are self-employed (100%) who invest in mutual funds.
- The data shows that UTI, SBI and Reliance mutual funds are most popular among the respondents.
- The above survey shows that there are equal number of respondents who invests and do not invest in mutual funds.
- The data concludes that majority of the respondents get the information about the mutual funds from brokers (26%) and from advertisements i.e. newspaper, internet and television (20%).
- The data reflects that majority of the respondents invest in mutual funds because of the following factors like- high return (43%) and tax exemption (23%).
- The data reflects that majority of the respondent's face many problems while investing in mutual funds like lack of information, lack of initiative by the industry and insufficient agents and brokers.
- Majority of the respondents while investing in mutual funds expect returns more than the benchmark (60%).
- The data reflects that majority of the respondents are satisfied (54%) and only (2%) of the respondents are dissatisfied while investing in mutual funds.
- The data also concludes that the respondents who do not invest in mutual funds invest in other investment avenues like fixed deposits, government securities, PPF and national pension scheme.
- The respondents who do not invest in mutual funds and in case in future if they invest in it the most important factor they bothers the most while investing in it are low risk, high return and profitability.

6. Conclusion

Mutual fund investment requires depth knowledge of different fund portfolios and schemes. It has emerged as an important segment of financial markets and so far has delivered value to theinvestors. The study reveals that the investor's perception is dependent on the demographic profile and assesses that the investor's age, gender and education has a direct impact on the investor's choice of investment. The study further reveals that female segment is not fully tapped. Hence, fund managers should take steps to tap the female segment. In the modern way of life, people have taken to fund investment as a mode of savings providing high rate of returns but for the investment the investor requires to understand the different multidimensional factors which can impact the flow of the funds in the market (i.e. cash flows, expense ratio and size of the fund etc.) investors need to research the parameters upon which the purchasing decision can be relied on. Investment decisions like investors risk, expected returns, liquidity, transparency, safety and security, types of funds etc. plays a crucial role in the behavior of the investors buying decision. The study also revealed that investors objective of investing in mutual funds are for tax savings, for retirement purpose, wealth creation and for children's education etc. The present study analyses the investor's opinion and behavior in mutual fund investment. The study put emphasis on the factors affecting the investor's behavior and also the factors which acts as a restraint. The investors had the option of different kinds of funds investment like AXIS BLUECHIP, ICICI, SBI, UTI, NIFTY FIFTY INDEX FUND, SBI MUTUAL FUND etc. further the findings highlighted the factors which restrict the flow of the fund from the investors. The most common factors included the lack of information, Risk involved in mutual funds, lack of knowledge of funds, liquidity and high return. Therefore is the duty of the portfolio managers to gain the trust of the prospective investors by enhancing the fund features and providing information.

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Instructions for Authors

MANUSCRIPT STYLE

Manuscripts should be submitted in MS-Word format and typed in Times New Roman 12-point font. The submitted MS-Word file must be named as 'title of the paper'. Authors' names or identity should not display in the file name or in 'Properties' of the file. They must be single spaced (including references, appendices, tables, and figures). As reviewers often prefer to write notes on the manuscript, authors should use one inch (2.54 centimeters) margins. Every page in the manuscript should contain a short running head and the page number. Manuscript must be formatted as Justified. Pages should measure 8.5 by 11 inches. Manuscript length should be limited to 12 pages inclusive of references, appendices, tables and figures.

MAJOR SECTIONS OF THE PAPER

TITLE PAGE

Title page must include the title of the paper (not more than 15 words), authors' name(s), affiliation, email id and phone number. Other than title page, authors' name(s), affiliation, email id and phone number should not appear anywhere else in the paper.

MAIN DOCUMENT

The principle divisions of the manuscript should appear in the following order: body of the article (Abstract, Keywords, Introduction, Literature Review, Research Methodology, Analysis, Findings, Conclusion etc.), references and appendices. Abstract (limit 250 words) should be included in the main document of the manuscript. There must be title of the paper at the top of this page. Footnotes, tables and figures must be numbered with short description and must be placed within manuscript. The body of the article begins immediately on page 1. The title of the paper should appear at the top of this first page. It should be centered, bold-faced, and in all capital letters. Number all pages, including those with references.

HEADINGS

Main headings should be used to designate the major sections of an article. Within the main body of the paper, the major headings typically include such things as INTRODUCTION, METHOD, RESULTS, and DISCUSSION. Supporting material, such as references and appendices are also treated as major headings. In all cases, major headings should be left-aligned, bold-faced and typed in all capital letters. Secondary headings should be typed with the left margin, in title case (small letters with major words beginning with capitals), and in bold.

TABLES AND FIGURES

Number tables and figures consecutively (one series for tables, one for figures) from the beginning to the end of the article. Indicate the position of each in the text.

CITATIONS

Giving proper credit to the sources of original ideas and previous work is an important aspect of good scholarship. Inappropriate or inaccurate citations do not do justice to the authors cited and can be misleading to readers. Citations must be in alphabetical order.

Example: Several studies (Ferris & Kacmar, 1992; Malhotra & Bazerman, 2008; Morrison, 1993a, 1993b) support this conclusion.

Also note that two or more works by the same author (or by an identical group of authors) published in the same year are distinguished by "a," "b," etc., added after the year. If a work has two authors, give both names every time the work is cited in the text. If a work has more than two authors, use "et al." after mentioning the name of first author.

Example : Emotional exhaustion is related to work attitudes (Cropanzano and Byrne, 2003).

.. exhaustion was also related to job performance (Adams et al., 2008). (For more than 2 authors)

REFERENCES

References must be in APA style.

Examples:

Goggin, W. C. (1974). How the multi-dimensional structure works at Dow Corning. Harvard Business Review, 55(1): 54-65.

Katz, D. and Kahn, R. L. (1978). The social psychology of organizations (2nd ed.). New York: Wiley.

Duncan, R. G. (1971). Multiple decision-making structures in adapting to environmental uncertainty. Working paper no. 54-71, Northwestern University Graduate School of Management, Evanston, IL.

Wall, J. P. (1983). Work correlates of the career plateau. Paper presented at the annual meeting of the Academy of Management, Dallas, TX.

Smith, M. H. (1980). A multidimensional approach to individual differences in empathy. Unpublished doctoral dissertation, University of Texas, Austin.

APPENDICES

The appendices present lengthy but essential methodological details, such as explanations of the calculation of measures or items in a new survey instruments. Presentation should be concise but not abbreviated. Each appendix should be treated as a major heading. The title of each appendix should be typed in all capital letters, centered, and bold-faced. Multiple appendices are APPENDIX A, APPENDIX B, etc. A single appendix does not require a letter.

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