



SRM Institute of Science and Technology

BONAFIDE CERTIFICATE

Date :

This is to certify that Mr/Ms. **"JAYANTHI SRIVENKATA SUBRAHMANYA VYSHNAVI" EC2352001010210** is a Bonafide student of our Institution pursuing final year **MASTER IN BUSINESS ADMINISTRATION** during the academic year 2023-2024.

In partial fulfilment of the above-mentioned course the student is required to do a Project work for 3 months and submit the report.

Signature & Seal of Director

Empowering Connections: Harnessing AI to Revolutionize Employee Engagement

*Project Report submitted in partial
fulfilment of the requirements for the
award of*

MASTERS IN BUSINESS ADMINISTRATION

Submitted by

JAYANTHI SRIVENKATA SUBRAHMANYA VYSHNAVI

EC2352001010210

Under the guidance of

Dr. Madhanrajan U

Assistant Professor



SRM Institute of Science and Technology

Kattankulathur

DECEMBER 2024

ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to **Board of Management** of SRM Institute of Science and Technology for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

I convey my thanks to **Dr. Manoranjan Pon. Ram**, Director, Directorate of Online Education for providing me necessary support at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my Internal Project Guide **Dr. Madhanrajan U** for him constant support and encouragement during the advancement of my project work.

I am extremely grateful to Suriya Deepan D, for enabling me to work on my project at Arvind polymers and for his valuable guidance, suggestions, and constant encouragement which paved way for the successful completion of my Project work.

I wish to express my thanks to all Teaching and Non-teaching staff members of SRMIST, who were helpful in many ways for the completion of my project.

I would like to thank everybody who helped me in submitting my project report successfully.

(Signature of student)

J S S VYSHNAVI

(EC2352001010210)

DECLARATION

I, **JAYANTHI SRIVENKATA SUBRAHMANYA VYSHNAVI (EC2352001010210)**,

hereby declare that the Project Report entitled

“Empowering Connections: Harnessing AI to Revolutionize Employee Engagement”

was done by me under the guidance of **Dr. Madhanrajan U** at the Directorate of Online Education, SRM Institute of Science and Technology, Chennai and submitted in partial fulfilment of the requirements to be awarded the Masters in Business Administration degree, is my genuine project work conducted.

DATE:

PLACE: CHENNAI

(Signature of student)

J S S VYSHNAVI

CERTIFICATE

This is to certify that “**JAYANTHI SRIVENKATA SUBRAHMANYA VYSHNAVI**”
EC2352001010210 student of Directorate of online Education, SRM Institute of Science and Technology has successfully completed the project titled under the guidance of **Dr. Madhanrajan U** , in partial fulfilment of the requirement for the award of degree of “Masters in of Business Administration” in the academic year 2023 – 2024.

Name & Signature of the Guide

Dr. Madhanrajan U

Name & Signature of the Director

Dr. Manoranjan Pon.Ram

Signature of Internal Examiner

Signature of External Examiner

Date:

Place: Kattankulathur

TABLE OF CONTENTS

CHAPTER NO. PAGE NO.	TITLE
1.	Abstract..... 7
2.	Synopsis..... 17
3.	Introduction.....19
4.	Objectives of the study.....27
5.	Problem Description 29
6.	Review of Literature..... 31
7.	Research Methodology.....49
8.	Questionnaire..... 54
9.	Statistical Purpose to be Used56
10.	Finding Analysis58
11.	Conclusion67

1. ABSTRACT

Every organization needs well-adjusted, trained and experienced people to perform its activities. As jobs in today's dynamic organizations have become more complex there is a need to introduce much better techniques and courses to solve the problems of employees. The project "HR Development strategies for Long Term planning and growth" has its main objectives as to study the selection processes, on-boarding, background & ex-employee checks, and satisfaction of employees towards benefits etc.

The research type used was exploratory, which provides data about the population or universe being studied. The sampling units covered are from the major departments and the sample size taken for this study is 120 and simple random sampling was the technique used.

Data collection is done by means of interview schedule with the help of questionnaire. The data collected will be analyzed, statistical tools were used and interpretations were made using the responses for all the questions. Last but not the least, it can be said that the company should follow an Open Door Policy where employees can approach their senior management and CEO with their work related problems, which will ultimately lead to a problem free environment in the organization.

CHAPTER 1 INTRODUCTION & DESIGN OF THE STUDY

1.1 INTRODUCTION

It is indeed a truism, that the individual setting is growing more complex and competitive everyday with new changes and developments emerging with regard to technology, the aspirations of the working class and in the organization itself. No organization in the present context can hope to exist in a vacuum, as it has the responsibility of catering to the requirements of its different publics, who contribute largely towards its survival.

The work force is said to be the most important resource of any organization. Therefore, other than providing employment, every organization is obliged to see that the production and the overall organizational goals are achieved. Innumerable studies conducted go to prove that it requires more than modern up-to-date equipment, skilled workmen, technical know-how, better employer-employee relationship, better working environment etc. to achieve this target successfully.

Work, by itself may be considered to be impersonal and objective. But as work is done by human beings, it is a unique human activity involving “psychology, physiology, society, community, personality and power”. Unlike in the past, where there was a self-respecting working class – a working class that knew itself to be equal to its “betters”, except in income and economic positions; today we have a more visible emergence of the so-called “knowledge workers”, who is the successor to yesterday’s skilled worker. His position, status, contribution and aspirations keep changing from a worker to organization, and have to be designed in accordance, if fruitful results are to be obtained. The objective of the new knowledge worker emphasizes increasingly on the ability to make himself productive, as well as achieving. It supports the ancient Human Relations Philosophy that “one cannot hire a hand; the whole man comes with it”. In the past, the human element in the cost of production had been badly neglected, resulting in a steady deterioration in the worker’s productive capacity as well as in his growth and morale. Therefore, it is obvious that an organization is obliged to look into these finer and more important aspects. This is very aptly said in Mr. K. D. Gangrade’s words: “No matter how fine the industrial plant, no matter how intricate and marvelous the machines used within it, and no matter how ingenious the arrangement of the machines; unless proper attention is paid to the employees and the needs and aspirations, the production schedule gets disturbed, and the employer-employee relations spoiled”.

Therefore, it’s obvious that for good and successful performance of any organization, a number of contributory factors like job satisfaction, job involvement, job performance, working environment, satisfaction with various facilities and benefits, organizational culture, etc. play a very significant role.

Introduction

Deep Learning

Deep learning is a subset of machine learning, which itself is a branch of artificial intelligence (AI) that involves algorithms and statistical models that enable computers to perform tasks without explicit instructions, relying instead on patterns and inference. Deep learning distinguishes itself by the depth of its neural networks, which are computational models vaguely inspired by the biological neural networks in human brains. These networks are composed of layers of nodes, or "neurons," each layer capable of learning some aspect of the data it processes. The "deep" in deep learning refers to the number of layers through which the data is transformed. More layers allow for the learning of more complex patterns.

Foundations of Deep Learning

Deep learning's roots can be traced back to the concept of artificial neural networks (ANNs), which were designed to mimic the way human brains operate. An ANN is composed of input and output layers, as well as a hidden layer consisting of units that transform the input into something that the output layer can use. Deep learning involves a more sophisticated version of these networks, featuring multiple hidden layers, hence the term "deep" neural networks (DNNs).

Key Components of Deep Learning

- 1. Neurons:** The basic unit of computation in a neural network, receiving input from other neurons or external sources and computing an output.
- 2. Weights and Biases:** Parameters within the network that are adjusted through learning. The weight controls the impact of an input, and the bias allows the activation function to be shifted.
- 3. Activation Functions:** Non-linear functions that decide whether a neuron should be activated or not, based on whether each neuron's input is relevant for the model's prediction.
- 4. Backpropagation:** A method used for training the network, where the output error is propagated backward through the network to update the weights, minimizing the error in predictions.
- 5. Loss Functions:** Functions that measure the difference between the actual output and the predicted output by the model. The goal of training is to minimize this loss.

Applications of Deep Learning :

Deep learning has found applications across a broad spectrum of areas, including but not limited to:

Image and Video Recognition: Deep learning models can identify objects, people, scenes, etc., in images and videos, which is useful in surveillance, security, and entertainment.

Natural Language Processing (NLP): Applications like machine translation, sentiment analysis, and chatbots benefit from deep learning's ability to understand and generate human language.

Autonomous Vehicles: Deep learning algorithms process input from vehicle sensors, providing data that supports decision-making for autonomous driving.

Healthcare: From diagnosing diseases from medical imaging to predicting patient outcomes, deep learning is revolutionizing healthcare.

Challenges and Future Directions

Despite its impressive capabilities, deep learning faces challenges such as the need for large amounts of labeled data, vulnerability to adversarial attacks, and the "black box" nature of deep learning models, where the decision-making process is not always transparent. Ongoing research in the field is focused on addressing these challenges, improving the efficiency and reliability of deep learning models, and exploring new architectures and training methods.

In conclusion, deep learning represents a significant advancement in the field of artificial intelligence, offering powerful tools for understanding and interacting with the world. Its continued development promises to drive further innovations across various domains, reshaping industries and impacting society in profound ways.

Optimization Code Techniques

1. MKL-DNN for Intel CPUs:

- Use MKL-DNN to optimize convolutional operations, memory management, and threading on Intel CPUs.

```
import torch
torch.set_num_threads(4) # Optimize threading for Intel CPUs
```

2. cuDNN for NVIDIA GPUs:

- Enable cuDNN auto-tuning to find the best algorithms for convolutional layers, improving GPU performance.

```
import torch.backends.cudnn as cudnn
cudnn.benchmark = True # Enable cuDNN auto-tuning
```

3. ARM Compute Library for ARM Devices:

- Utilize ARM Compute Library for efficient execution of deep learning models on ARM-based devices.

```
// Example for using ARM Compute Library in C++
arm_compute::NEConvolutionLayer conv_layer; conv_layer.configure(...); //
Configure convolution layer with optimized parameters
```

4. Model Pruning and Quantization:

- Implement pruning to remove unnecessary weights and quantization to reduce precision, optimizing model size and inference speed.

```
import torch.quantization
model = torch.quantization.quantize_dynamic(model, {torch.nn.Linear},
dtype=torch.qint8)
```

5. Batch Normalization and Layer Fusion:

- Fuse batch normalization layers with preceding convolutional layers to reduce computational overhead.

```
from torch.nn.utils.fusion import fuse_modules
model = fuse_modules(model, [['conv', 'bn']])
```

6. Asynchronous Processing and Multi-threading:

- Use asynchronous data loading and multi-threading to minimize bottlenecks in data processing.

```
from torch.utils.data import DataLoader
dataloader = DataLoader(dataset, batch_size=32, num_workers=4,
pin_memory=True)
```

Introduction

In the evolving landscape of computer vision, deep learning models have become indispensable for real-time object detection, a crucial capability in applications ranging from autonomous vehicles to public safety measures like social distancing enforcement. The need for rapid and precise detection of objects in dynamic environments presents a significant challenge, particularly when computational resources are limited. This study focuses on optimizing object detection techniques by leveraging MATLAB, Python, and a suite of third-party libraries, including Intel MKL-DNN, NVIDIA cuDNN, and ARM Compute Library, to enhance performance and efficiency.

MATLAB and Python provide robust platforms for developing and prototyping deep learning models. MATLAB offers powerful tools for algorithm development and data visualization, while Python's extensive ecosystem supports rapid integration and deployment of machine

learning models. By harnessing the strengths of both environments, this research aims to create a versatile framework for optimizing object detection systems.

The integration of third-party libraries such as Intel MKL-DNN, NVIDIA cuDNN, and ARM Compute Library plays a pivotal role in accelerating deep learning computations. Intel MKL-DNN optimizes performance on Intel CPUs, delivering enhanced efficiency for deep learning tasks. NVIDIA cuDNN provides GPU-accelerated functionalities that significantly speed up the training and inference of neural networks, crucial for real-time applications. Meanwhile, the ARM Compute Library offers optimized routines for ARM-based devices, enabling efficient deployment on edge devices where power and computational resources are constrained.

Analysis

The primary focus of this study is to optimize deep learning techniques for HR shortlisting candidates as a practical application. The analysis involves understanding the computational demands of deep learning models and identifying bottlenecks that hinder performance and efficiency. Key areas of analysis include:

1. Model Complexity:

- Evaluate existing deep learning architectures for object detection, such as YOLO, SSD, and Faster R-CNN, to determine their computational requirements and performance trade-offs.
- Identify opportunities for simplifying models through techniques like pruning and quantization without significantly compromising accuracy.

2. Computational Resources:

- Assess the capabilities of different hardware platforms, including CPUs, GPUs, and ARM-based devices, to determine the optimal deployment strategy.
- Analyze how the use of Intel MKL-DNN, NVIDIA cuDNN, and ARM Compute Library can enhance performance on respective hardware.

3. Real-Time Processing:

- Examine the latency and throughput of models to ensure they meet the requirements for HR applications.
- Explore edge computing solutions to offload processing tasks and reduce latency in distributed environments.

4. Integration with MATLAB and Python:

- Analyze the integration of MATLAB and Python for model development and deployment, leveraging the strengths of both platforms.
- Ensure seamless data exchange and interoperability between the two environments to facilitate rapid prototyping and testing.

Requirements

1. Model Optimization:

- Implement model pruning and quantization techniques to reduce the size and complexity of deep learning models.
- Develop lightweight architectures that maintain high detection accuracy while minimizing computational load.

2. Hardware Utilization:

- Leverage Intel MKL-DNN for optimized CPU performance, particularly in environments where GPU resources are limited.
- Utilize NVIDIA cuDNN for accelerated GPU computations to enhance training and inference speeds.
- Employ ARM Compute Library for efficient deployment on edge devices, ensuring low power consumption and high throughput.

3. Software Integration:

- Establish a robust framework for integrating MATLAB and Python, allowing for flexible model development and deployment.
- Ensure compatibility with third-party libraries and tools to maximize the use of available resources and capabilities.

4. Real-Time Capability:

- Design the system to handle high-volume data streams with minimal latency, ensuring timely detection and response.
- Implement edge computing strategies to distribute computational tasks and enhance system responsiveness.

Requirements

Hardware Requirements:

Processing Unit: A computer or server with a high-performance CPU and GPU to process video streams and run deep learning models. The specifications should be sufficient to handle the computational requirements of object detection and image processing algorithms without significant latency.

Software Requirements:

Operating System: Windows, Linux, or macOS, capable of running MATLAB and supporting Python integration.

MATLAB: Latest version of MATLAB installed with Image Processing Toolbox, Computer Vision Toolbox, and MATLAB Coder for generating Mex files.

Python: Python environment with TensorFlow installed for training and utilizing deep learning models for object detection.

Technical Specifications

Deep Learning Model: A pre-trained TensorFlow model capable of detecting individuals with high accuracy. The model should be optimized for performance.

Geometric Transformation: Calibration data and algorithms to transform the data

Visualization: Mechanisms for shortlisting candidates

Analysis

Feasibility Study

Technical Feasibility: Assess the capability of existing deep learning models and MATLAB's image processing tools to meet the system's requirements for real-time performance and accuracy.

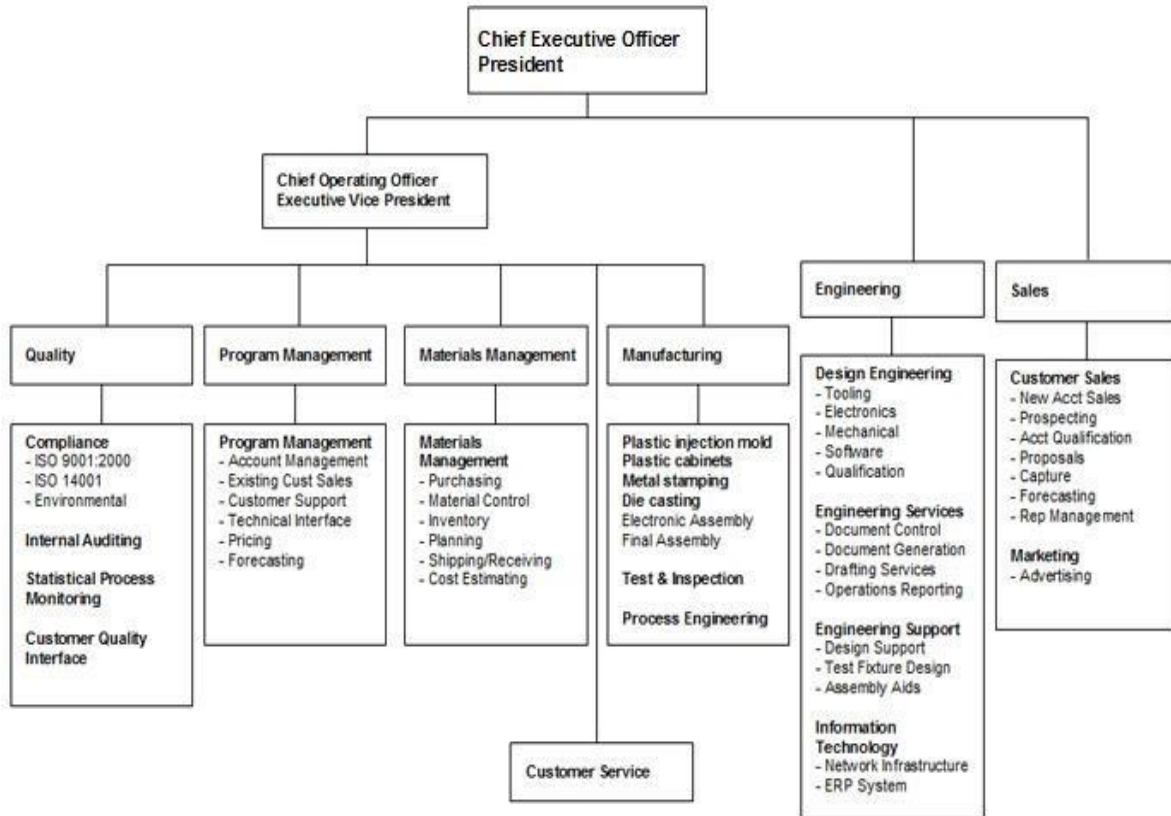
Operational Feasibility: Evaluate the practicality of deploying the system in intended environments, considering factors such as camera placement, lighting conditions, and the need for real-time feedback.

Economic Feasibility: Estimate the costs associated with implementing and maintaining the system, including hardware, software, and operational expenses.

Risk Analysis

Scalability: Assess the system's ability to scale up to handle large data without significant degradation in performance.

ORGANISATION CHART



PROBLEM STATEMENT

The HR department of any organization is like the bridge between the organization's top officials and the general employees. It is the HR department amasses the suitable and able workforce. The extensive and intensive survey conducted has given new dimensions to my study.

OBJECTIVES OF THE STUDY

Primary objective:

To analyze the various Human resource development strategies for long term growth and planning at Arvind Polymers, Chennai **Secondary objectives**

- To evaluate the perception of employees on the problems of HRD process at Arvind Polymers
- To study the opinion of employees towards the on-boarding process of talents at Arvind Polymers
- To understand the post recruitment procedures of employees at Arvind Polymers
- To find out the satisfaction of employees towards absenteeism and exit policies of the company
- To understand the functions of HR help desk.

SCOPE OF THE STUDY:

The study was helpful in accessing the effectiveness of the HRD process in the organization. The organization wanted to access the factors influencing the candidates to attend the interview the struggles faced by the candidates at the interview place and to know the opinion of the candidates about the interview. The study aims at collecting information about the candidates regarding HRD and their expectation about the company. It also suggests remedial measures for fulfilling the gap between the candidates' expectation and organization expectation.

2. Synopsis

Title: Empowering Connections: Harnessing AI to Revolutionize Employee Engagement

Introduction: In the rapidly evolving corporate landscape, employee engagement has emerged as a cornerstone for organizational success. As companies strive to foster a motivated and committed workforce, the integration of artificial intelligence (AI) presents unprecedented opportunities to enhance engagement strategies. This project explores how AI can be leveraged to create more personalized, efficient, and impactful employee engagement initiatives.

Objectives:

1. To analyze the current state of employee engagement and identify existing challenges.
2. To explore AI technologies and tools that can be utilized to improve employee engagement.
3. To evaluate the benefits and potential drawbacks of implementing AI-driven engagement strategies.
4. To provide actionable recommendations for organizations seeking to integrate AI into their HR practices.

Literature Review: The literature review will cover foundational theories of employee engagement, current trends in AI applications within HR, and existing research on the intersection of AI and employee engagement. This section will establish the theoretical framework and highlight gaps that this project aims to address.

Methodology: The project will employ a mixed-methods approach, combining qualitative and quantitative research. Surveys and interviews with HR professionals and employees will be conducted to gather insights on current engagement practices and perceptions of AI. Additionally, case studies of organizations that have successfully integrated AI into their engagement strategies will be analyzed.

Expected Outcomes:

- Identification of key AI tools and technologies that enhance employee engagement.
- Insights into the benefits and challenges of AI integration in HR.
- Development of a framework for implementing AI-driven engagement strategies.
- Recommendations for addressing ethical and privacy concerns associated with AI in HR.

Conclusion: The project aims to demonstrate that AI, when thoughtfully integrated, can revolutionize employee engagement by fostering deeper connections, enhancing personalization, and providing data-driven insights. By empowering HR professionals with advanced tools, organizations can create a more engaged, productive, and satisfied workforce.

Keywords: Employee Engagement, Artificial Intelligence, HR, Personalization, Organizational Success, Technology Integration

This synopsis outlines the scope and focus of your project, providing a clear roadmap for research and analysis.

3. Introduction

In today's dynamic business environment, organizations are increasingly recognizing the critical role of employee engagement in driving productivity, innovation, and overall organizational success. Engaged employees are not only more productive but also contribute to a positive workplace culture and are less likely to leave the organization. However, traditional methods of fostering employee engagement are often limited in their ability to address the diverse and evolving needs of the modern workforce.

As technological advancements continue to reshape industries, artificial intelligence (AI) has emerged as a transformative force with the potential to revolutionize various aspects of human resource management, including employee engagement. AI technologies offer innovative solutions to personalize employee experiences, streamline HR processes, and provide data-driven insights that can enhance decision-making.

This project, "Empowering Connections: Harnessing AI to Revolutionize Employee Engagement," seeks to explore how AI can be effectively integrated into employee engagement strategies to create more meaningful and impactful connections within the workplace. By examining the current landscape of employee engagement, identifying key AI tools and technologies, and analyzing real-world applications, this study aims to provide a comprehensive understanding of the opportunities and challenges associated with AI-driven engagement initiatives.

The project will also address critical considerations such as the ethical implications of AI use in HR, data privacy concerns, and the importance of maintaining a human touch in engagement practices. Through a combination of literature review, case studies, and empirical research, this study will offer actionable recommendations for organizations looking to leverage AI to foster a more engaged and motivated workforce.

In summary, this project aims to demonstrate that AI, when strategically integrated, can empower HR professionals to revolutionize employee engagement, leading to enhanced organizational performance and employee satisfaction. By harnessing the power of AI, organizations can build stronger connections with their employees, ultimately driving long-term success and sustainability.

This introduction sets the stage for your project by highlighting the importance of employee engagement, the potential of AI, and the objectives of your research.

▪ Importance of Employee Engagement:

- Employee engagement is crucial for driving productivity, innovation, and organizational success.
- Engaged employees contribute to a positive workplace culture and have lower turnover rates.

- Traditional engagement methods may not meet the diverse needs of today's workforce.
- **Emergence of AI in HR:**
 - Technological advancements, particularly AI, are reshaping human resource management.
 - AI offers innovative solutions for personalizing employee experiences and streamlining HR processes.
 - Data-driven insights provided by AI can enhance decision-making and engagement strategies.
- **Project Focus:**
 - The project explores how AI can be integrated into employee engagement strategies.
 - It aims to create meaningful and impactful connections within the workplace through AI.
 - The study will examine the current landscape, key AI tools, and real-world applications.
- **Key Considerations:**
 - Ethical implications of AI use in HR, including data privacy concerns, will be addressed.
 - The importance of maintaining a human touch in engagement practices will be emphasized.
- **Research Methodology:**
 - The project will include a literature review, case studies, and empirical research.
 - It will provide actionable recommendations for leveraging AI in employee engagement.
- **Project Goals:**
 - Demonstrate how AI can empower HR professionals to enhance employee engagement.
 - Show how strategic AI integration can lead to improved organizational performance and employee satisfaction.
 - Highlight the potential for AI to build stronger connections with employees, driving long-term success.

Introduction

Deep Learning

Deep learning is a subset of machine learning, which itself is a branch of artificial intelligence (AI) that involves algorithms and statistical models that enable computers to perform tasks without explicit instructions, relying instead on patterns and inference. Deep learning distinguishes itself by the depth of its neural networks, which are computational models vaguely inspired by the biological neural networks in human brains. These networks are composed of layers of nodes, or "neurons," each layer capable of learning some aspect of the data it processes. The "deep" in deep learning refers to the number of layers through which the data is transformed. More layers allow for the learning of more complex patterns.

Foundations of Deep Learning

Deep learning's roots can be traced back to the concept of artificial neural networks (ANNs), which were designed to mimic the way human brains operate. An ANN is composed of input and output layers, as well as a hidden layer consisting of units that transform the input into something that the output layer can use. Deep learning involves a more sophisticated version of these networks, featuring multiple hidden layers, hence the term "deep" neural networks (DNNs).

Key Components of Deep Learning

- 1. Neurons:** The basic unit of computation in a neural network, receiving input from other neurons or external sources and computing an output.
- 2. Weights and Biases:** Parameters within the network that are adjusted through learning. The weight controls the impact of an input, and the bias allows the activation function to be shifted.
- 3. Activation Functions:** Non-linear functions that decide whether a neuron should be activated or not, based on whether each neuron's input is relevant for the model's prediction.
- 4. Backpropagation:** A method used for training the network, where the output error is propagated backward through the network to update the weights, minimizing the error in predictions.
- 5. Loss Functions:** Functions that measure the difference between the actual output and the predicted output by the model. The goal of training is to minimize this loss.

Applications of Deep Learning :

Deep learning has found applications across a broad spectrum of areas, including but not limited to:

Image and Video Recognition: Deep learning models can identify objects, people, scenes, etc., in images and videos, which is useful in surveillance, security, and entertainment.

Natural Language Processing (NLP): Applications like machine translation, sentiment analysis, and chatbots benefit from deep learning's ability to understand and generate human language.

Autonomous Vehicles: Deep learning algorithms process input from vehicle sensors, providing data that supports decision-making for autonomous driving.

Healthcare: From diagnosing diseases from medical imaging to predicting patient outcomes, deep learning is revolutionizing healthcare.

Challenges and Future Directions

Despite its impressive capabilities, deep learning faces challenges such as the need for large amounts of labeled data, vulnerability to adversarial attacks, and the "black box" nature of deep learning models, where the decision-making process is not always transparent. Ongoing research in the field is focused on addressing these challenges, improving the efficiency and reliability of deep learning models, and exploring new architectures and training methods.

In conclusion, deep learning represents a significant advancement in the field of artificial intelligence, offering powerful tools for understanding and interacting with the world. Its continued development promises to drive further innovations across various domains, reshaping industries and impacting society in profound ways.

Optimization Code Techniques

1. MKL-DNN for Intel CPUs:

- Use MKL-DNN to optimize convolutional operations, memory management, and threading on Intel CPUs.

```
import torch
torch.set_num_threads(4) # Optimize threading for Intel CPUs
```

2. cuDNN for NVIDIA GPUs:

- Enable cuDNN auto-tuning to find the best algorithms for convolutional layers, improving GPU performance.

```
import torch.backends.cudnn as cudnn
cudnn.benchmark = True # Enable cuDNN auto-tuning
```

3. ARM Compute Library for ARM Devices:

- Utilize ARM Compute Library for efficient execution of deep learning models on ARM-based devices.

```
// Example for using ARM Compute Library in C++
arm_compute::NEConvolutionLayer conv_layer; conv_layer.configure(...); //
Configure convolution layer with optimized parameters
```

4. Model Pruning and Quantization:

- Implement pruning to remove unnecessary weights and quantization to reduce precision, optimizing model size and inference speed.

```
import torch.quantization
model = torch.quantization.quantize_dynamic(model, {torch.nn.Linear},
dtype=torch.qint8)
```

5. Batch Normalization and Layer Fusion:

- Fuse batch normalization layers with preceding convolutional layers to reduce computational overhead.

```
from torch.nn.utils.fusion import fuse_modules
model = fuse_modules(model, [['conv', 'bn']])
```

6. Asynchronous Processing and Multi-threading:

- Use asynchronous data loading and multi-threading to minimize bottlenecks in data processing.

```
from torch.utils.data import DataLoader
dataloader = DataLoader(dataset, batch_size=32, num_workers=4,
pin_memory=True)
```

Introduction

In the evolving landscape of computer vision, deep learning models have become indispensable for real-time object detection, a crucial capability in applications ranging from autonomous vehicles to public safety measures like social distancing enforcement. The need for rapid and precise detection of objects in dynamic environments presents a significant challenge, particularly when computational resources are limited. This study focuses on optimizing object detection techniques by leveraging MATLAB, Python, and a suite of third-party libraries, including Intel MKL-DNN, NVIDIA cuDNN, and ARM Compute Library, to enhance performance and efficiency.

MATLAB and Python provide robust platforms for developing and prototyping deep learning models. MATLAB offers powerful tools for algorithm development and data visualization, while Python's extensive ecosystem supports rapid integration and deployment of machine learning models. By harnessing the strengths of both environments, this research aims to create a versatile framework for optimizing object detection systems.

The integration of third-party libraries such as Intel MKL-DNN, NVIDIA cuDNN, and ARM Compute Library plays a pivotal role in accelerating deep learning computations. Intel MKL-DNN optimizes performance on Intel CPUs, delivering enhanced efficiency for deep learning tasks. NVIDIA cuDNN provides GPU-accelerated functionalities that significantly speed up the training and inference of neural networks, crucial for real-time applications. Meanwhile, the ARM Compute Library offers optimized routines for ARM-based devices, enabling efficient deployment on edge devices where power and computational resources are constrained.

Analysis

The primary focus of this study is to optimize deep learning techniques for HR shortlisting candidates as a practical application. The analysis involves understanding the computational demands of deep learning models and identifying bottlenecks that hinder performance and efficiency. Key areas of analysis include:

5. Model Complexity:

- Evaluate existing deep learning architectures for object detection, such as YOLO, SSD, and Faster R-CNN, to determine their computational requirements and performance trade-offs.
- Identify opportunities for simplifying models through techniques like pruning and quantization without significantly compromising accuracy.

6. Computational Resources:

- Assess the capabilities of different hardware platforms, including CPUs, GPUs, and ARM-based devices, to determine the optimal deployment strategy.
 - Analyze how the use of Intel MKL-DNN, NVIDIA cuDNN, and ARM Compute Library can enhance performance on respective hardware.
- 7. Real-Time Processing:**
- Examine the latency and throughput of models to ensure they meet the requirements for HR applications.
 - Explore edge computing solutions to offload processing tasks and reduce latency in distributed environments.
- 8. Integration with MATLAB and Python:**
- Analyze the integration of MATLAB and Python for model development and deployment, leveraging the strengths of both platforms.
 - Ensure seamless data exchange and interoperability between the two environments to facilitate rapid prototyping and testing.

Requirements

- 5. Model Optimization:**
- Implement model pruning and quantization techniques to reduce the size and complexity of deep learning models.
 - Develop lightweight architectures that maintain high detection accuracy while minimizing computational load.
- 6. Hardware Utilization:**
- Leverage Intel MKL-DNN for optimized CPU performance, particularly in environments where GPU resources are limited.
 - Utilize NVIDIA cuDNN for accelerated GPU computations to enhance training and inference speeds.
 - Employ ARM Compute Library for efficient deployment on edge devices, ensuring low power consumption and high throughput.
- 7. Software Integration:**
- Establish a robust framework for integrating MATLAB and Python, allowing for flexible model development and deployment.
 - Ensure compatibility with third-party libraries and tools to maximize the use of available resources and capabilities.
- 8. Real-Time Capability:**
- Design the system to handle high-volume data streams with minimal latency, ensuring timely detection and response.
 - Implement edge computing strategies to distribute computational tasks and enhance system responsiveness.

Requirements

Hardware Requirements:

Processing Unit: A computer or server with a high-performance CPU and GPU to process video streams and run deep learning models. The specifications should be sufficient to handle the computational requirements of object detection and image processing algorithms without significant latency.

Software Requirements:

Operating System: Windows, Linux, or macOS, capable of running MATLAB and supporting Python integration.

MATLAB: Latest version of MATLAB installed with Image Processing Toolbox, Computer Vision Toolbox, and MATLAB Coder for generating Mex files.

Python: Python environment with TensorFlow installed for training and utilizing deep learning models for object detection.

Technical Specifications

Deep Learning Model: A pre-trained TensorFlow model capable of detecting individuals with high accuracy. The model should be optimized for performance.

Geometric Transformation: Calibration data and algorithms to transform the data

Visualization: Mechanisms for shortlisting candidates

Technical Feasibility: Assess the capability of existing deep learning models and MATLAB's image processing tools to meet the system's requirements for real-time performance and accuracy.

Operational Feasibility: Evaluate the practicality of deploying the system in intended environments, considering factors such as camera placement, lighting conditions, and the need for real-time feedback.

Economic Feasibility: Estimate the costs associated with implementing and maintaining the system, including hardware, software, and operational expenses.

4. Objectives of the Study

1. Analyze Current Engagement Practices:

- To assess the effectiveness and limitations of existing employee engagement strategies within organizations.
- To identify key challenges faced by HR professionals in maintaining high levels of employee engagement.

2. Explore AI Technologies:

- To investigate various AI tools and technologies that can be applied to enhance employee engagement.
- To evaluate the potential of AI-driven solutions in providing personalized and data-driven engagement experiences.

3. Evaluate Benefits and Challenges:

- To analyze the benefits of integrating AI into employee engagement initiatives, such as increased personalization, efficiency, and predictive capabilities.
- To identify potential challenges and barriers to AI adoption, including ethical considerations and data privacy concerns.

4. Conduct Case Studies:

- To examine real-world examples of organizations that have successfully implemented AI in their engagement strategies.
- To derive insights and best practices from these case studies that can be applied to other organizations.

5. Develop Implementation Framework:

- To create a comprehensive framework for organizations to effectively integrate AI into their employee engagement strategies.
- To provide actionable recommendations for HR professionals to leverage AI while maintaining a human-centric approach.

6. Address Ethical and Privacy Concerns:

- To explore the ethical implications of using AI in HR, focusing on ensuring data security and maintaining employee trust.
- To propose guidelines for balancing technological innovation with ethical responsibility.

7. Forecast Future Trends:

- To identify emerging trends and future directions in the use of AI for employee engagement.
- To explore how these trends could further transform HR practices and employee experiences.

This section outlines the specific goals your study aims to achieve, providing a clear focus and direction for your research and analysis.

5. Problem Description

- **Current Engagement Challenges:**
 - Many organizations struggle with low levels of employee engagement, which can lead to decreased productivity, higher turnover rates, and negative impacts on organizational culture.
 - Traditional engagement strategies often fail to address the diverse needs and expectations of a modern, multi-generational workforce.
 - There is a lack of personalized engagement initiatives that can cater to individual employee preferences and motivations.
- **Limitations of Traditional Methods:**
 - Conventional methods of measuring and improving engagement, such as annual surveys and one-size-fits-all programs, are often insufficient in providing real-time insights and actionable feedback.
 - HR teams may lack the resources and tools necessary to effectively analyze engagement data and implement targeted interventions.
- **Potential of AI in Addressing Engagement Issues:**
 - AI technologies offer the potential to transform employee engagement by providing personalized experiences and predictive analytics.
 - However, there is a gap in understanding how to effectively integrate AI into existing HR practices to maximize its benefits.
- **Barriers to AI Adoption:**
 - Many organizations face challenges in adopting AI due to concerns about data privacy, ethical implications, and the potential loss of the human element in HR interactions.
 - There is a need for clear guidelines and best practices to ensure successful AI integration without compromising employee trust and data security.
- **Research Gap:**
 - While there is growing interest in the use of AI for employee engagement, comprehensive studies that explore practical applications, benefits, and challenges are limited.

- This project aims to fill this gap by investigating how AI can be harnessed to revolutionize employee engagement, providing insights and recommendations for HR professionals.

This section outlines the core problems your project seeks to address, highlighting the limitations of current engagement practices and the potential of AI to overcome these challenges.

6. Review of Literature

1. Understanding Employee Engagement:

- **Definition and Importance:** Employee engagement is defined as the emotional commitment employees have towards their organization and its goals. Studies by Kahn (1990) and others have highlighted its impact on productivity, job satisfaction, and retention.
- **Traditional Approaches:** Research by Gallup and others has shown that traditional engagement strategies often rely on periodic surveys and generalized programs, which may not effectively address individual employee needs.

2. Limitations of Current Practices:

- **One-Size-Fits-All Strategies:** According to Saks (2006), many organizations employ generic engagement strategies that fail to account for diverse employee motivations and preferences.
- **Lack of Real-Time Feedback:** As noted by Macey and Schneider (2008), traditional methods often lack the capability to provide real-time insights and immediate feedback, limiting their effectiveness.

3. The Rise of AI in HR:

- **AI Technologies in HR:** Recent studies by Davenport and Ronanki (2018) have explored the potential of AI technologies like machine learning, natural language processing, and predictive analytics in transforming HR functions.
- **AI for Personalization:** Research by Bersin (2019) suggests that AI can enhance personalization in employee engagement by tailoring experiences and communications to individual preferences.

4. Benefits of AI Integration:

- **Enhanced Decision-Making:** AI-driven analytics provide HR professionals with data-driven insights, enabling more informed decision-making (Boudreau & Cascio, 2017).
- **Predictive Capabilities:** Studies have shown that AI can predict employee disengagement and turnover risks, allowing for proactive interventions (Tambe, Cappelli, & Yakubovich, 2019).

5. Challenges and Ethical Considerations:

- **Data Privacy Concerns:** Research by Zarsky (2016) highlights concerns regarding data privacy and the ethical use of AI in handling employee information.
- **Maintaining Human Touch:** There is an ongoing debate about the balance between AI automation and the need for human interaction in HR practices (Stone et al., 2020).

6. Case Studies and Best Practices:

- **Successful Implementations:** Case studies of companies like IBM and Google, as documented by various researchers, illustrate the successful integration of AI in enhancing employee engagement.
- **Lessons Learned:** These examples provide valuable insights into best practices and potential pitfalls in AI adoption.

7. Future Directions:

- **Emerging Trends:** Literature by Wilson and Daugherty (2018) discusses future trends in AI, including the increasing role of AI in creating adaptive and responsive engagement strategies.
- **Innovations on the Horizon:** The potential for AI to drive further innovations in employee engagement is a growing area of interest among researchers and practitioners.

This literature review provides a comprehensive overview of existing research on employee engagement, the role of AI in HR, and the benefits and challenges of integrating AI into engagement strategies. It sets the foundation for your study by highlighting gaps in the current literature and areas where your research can contribute new insights.

- In the current situation where Indian IT Companies are facing high growth trajectory, getting good talents and retaining them is increasingly becoming difficult. Human resource management and tapping potential leaders“ is becoming one of the key responsibilities of HR Managers. Though leadership development has always been rated as the most important need of IT Companies, it lacks proper address by top level management. To address this gap it is pertinent for the management to know the factors that impacts the Human resource management and leadership development within the company. The basic emphasis of this paper is to analyze the factors influencing Human resource management in IT organization and also to understand the impact of Human resource management on overall leadership development. The study is descriptive and exploratory in nature. To identify factors influencing Human resource management factor analysis was used. To examine the hypothesis of the study Karl Pearson Coefficient correlation and regression analysis was done. The findings of the study suggests that potential identification, employee retention and rewards contributes significantly in leadership development It also suggests that there is a positive relation between Human resource management and leadership development
- **Source:** *Anita Singh and Rinku Sanjeev (2017), Human resource management For*
- *Developing Leadership: An Empirical Investigation, Independent Journal Of Management & Production (IJM&P), v. 8, n. 3, July - September 2017*

- With the emerging trends in Human resource management, Human resource management has become an area of concern globally. Human resource management activities are occupying a very significant amount of organization resources. Most organizations have formed a link between Human resource management and the overall business strategies. Several studies have been carried out with the aim of finding out the impact Human resource management has on organization performance, as it has become very popular. This paper critically looks at studies conducted on the subject, identifying empirical and contextual gaps that exist in the literature subject, and proposing a conceptual framework on the subject. From the studies, Human resource management is at the centre of the survival of the profit organizations in the contemporary world and the stiff competitive business world. The study concludes that even though there is a high correlation between the management of talent, and both financial and non-financial performance of organizations, it would be of worth to include other variables which may include the organization strategies, its structures and policies, the leadership styles and beliefs and others that might be of help to explain the relationships extensively.
- **Source:** *Faith Wanjira Muriithi, Muathe Stephen Makau (2017), Human resource management: A Conceptual Framework from Review of Literature and a Research Agenda, Journal of Human Resource Management 2017; 5(6): 90-94*
- Human resource management, which includes intentional work design, leadership development, and employee engagement, is a growing trend in the world of commerce, both domestically and globally. This article provides a review of the literature on Human resource management and explores ways in which this human resource management concept might be applicable to higher education and libraries.
- **Source:** *O'Bryan, C., & Casey, A. M. (2017). Human resource management: Hiring and Developing Engaged Employees. Library Leadership & Management, 32(1)*
- This study aimed to shed light on the concept of Human resource management as one of the new schemes that brought to Human Resources Management and its various activities especially in the new era. Furthermore, it comes not only to explore the reasons behind adopting such concept in organizations and companies and the impact on its culture but also to identify the most important strategies of Human resource management and how to deal with its considered as a competitive advantage for its direct impact on performance level as well as to identify the best ways to invest in Human resource management because of its effects on reducing the economic cost in the organization by retaining and motivating those talents to implement organization overall strategies. Human resources - especially talented - contribute to the achievement of competitive advantage in their organizations because they innovate in their field and they have the ability to make the right decisions to achieve goals In fact, there are some

- aspects that reflect the weakness of organizational loyalty leading talented people to leave their organizations; this is due to some repellent factors in their organizations, and the absence of the tools which will work on the employees' development in the organizations so as to enhance the affiliation, which led to unload a lot of talents
- **Source:** *Hossam Korany Ahmed (2016), The Impact Of Human resource management On The Competitive Advantage In The Organizations, International Journal of Management and Applied Science, ISSN: 2394-7926 Volume-2, Issue-8, Aug.-2016*
 - Competition and lack of available highly talented and skilled employees make finding and retaining talented people a major priority for organizations. In this highly competitive and demanding business environment, Human Resources departments are starting to move away from only focusing on recruitment and development to a more strategic position that unites the management of human capital with organizational goals. The purpose of the paper is to explore "Human resource management" strategies and practices, giving a thorough overview of the effective steps used in implementing Human resource management and the role of the HR in this. Consequently, a survey questionnaire is used to assess respondents' attitudes to and knowledge of the topic. Results and findings are used to draft recommendations to Lebanese HR managers to capitalize on best practices in Human resource management and challenges faced.
 - **Source:** *Hejase et al., (2016), Human resource management Challenges: An Exploratory Assessment from Lebanon, International Journal of Business Management and Economic Research (IJBMER), Vol 7(1), 2016, 504-52*
 - As theory still lacks consistent definition of successful Human resource management, the praxis is characterized by dissimilar interpretations of the term talent. The lack of integrity of definitions appears to be the reason to analyse Human resource management practices. The article focuses on consistency of suggested practices in management of organisational strategies. The aim is to reveal current approach of Czech organisations towards Human resource management practices and to specify the main factors affecting employee development in Human resource management in the tested organisations. Bivariate and multivariate statistical methods and analyses were used to lower the number of possible single approaches and practices. Analyses formed valid factors, which influence and determine employee development as key principles of Human resource management: alignment with strategy, internal consistency, cultural embeddedness, management involvement, and employer branding through differentiation. Results identified and verified different ways of support of talented employees. Firstly, it is Human resource management in its original shape (25.9%), secondly, Learning organisation based on common learning (23.5%) and the third factor

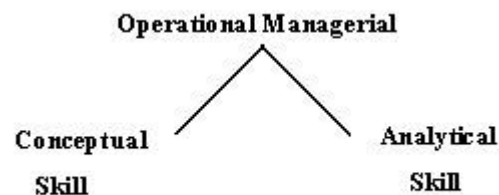
- name is Plain promises (12.4%). Organisations grouped in the factor only declare possibility of development, but do not practically use it.
- **Source:** *Lucie Vnoučková (2016), Practices of Human resource management in Organisations in the Czech Republic, Volume 64 82 Number 2, 2016*
 - Human resource management is a business strategy that organizations believe will enable them to retain their top talented employees and improve organization's performance. It is the process of effectively hiring the right talent, preparing them to take up top positions in future, assessing and managing their performance and also preventing them to leave the organization. The performance of every organization depends on the performance of their employees. If the employees have unique competencies which the competitors cannot replicate, the organization automatically gains a competitive edge over its competitors. So, for managing this unique human capital, the organizations are focusing on creating effective systems and processes for Human resource management. The organizations are also striving hard to retain their top/key talent because if they leave, the complete repository of knowledge is also gone out of the hands of the organization. The purpose of the study was to find out the impact of Human resource management on organizational performance for selected IT organizations in the NCR area. The findings show that there is partial impact of Human resource management on the performance. If this talent is appropriately managed and deployed at the right places, then, the organizations can make their captive use in order to increase their growth and profitability.
 - **Source:** *Dr. Puja Sareen, Dr. Shikha Mishra (2016), A Study of Human resource management and Its Impact on Performance of Organizations, IOSR Journal of Business and Management (IOSR-JBM) e-ISSN: 2278-487X, p-ISSN: 2319-7668. Volume 18, Issue 12. Ver. III (December. 2016), PP 66-73 www.iosrjournals.org*
 - The current article unveils and analyzes important shades of meaning for the widely discussed term, Human resource management,. It not only grounds the outlined perspectives in incremental formulation and elaboration of this construct, but also is oriented to exploring the underlying reasons for the social actors, proposing new nuances. Thus, a mind map and a fish-bone diagram are constructed to depict effectively and efficiently the current state of development for Human resource management and make easier the realizations of future research endeavours in this field.
 - **Source:** *Kiril Dimitrov (2015), Human resource management – An Etymological Study, Vanguard Scientific Instruments In Management, vol. 11, no. 2, 2015, ISSN 1314-0582*

- In this dynamic and competitive business era organizations are facing challenges in Human resource management. Human resource management of talented worker is becoming of great importance for the organizations which are working on global level. The demand for key position talented employees is high because those are the persons who will steer the organization and will be responsible to take the organization towards the peak of success, this is the reason organizations are in a state of fight for the best people. The major goal of every organizational strategy is to enhance the effectiveness and efficiency of the operation which could lead the organization to success. Human resource management is essential when the organizations will like to build winning teams which will be formed by talented personnel.
- **Source: Faria Rabbi, Nouman Ahad, Tahira Kousar and Tanzila Ali (2015), *Human resource management as a Source of Competitive Advantage, Asian Economic and Social Society*. All rights reserved ISSN (P): 2309-8295, ISSN (E): 2225-4226 Volume 5, Issue 9, 2015, pp. 208-214**
- American businesses face the challenge of replacing 70 million experienced and talented workers over the coming decades as the Baby Boomer generation retires. The challenge comes at the same time as seismic shifts in the ethnic composition of the American workforce, global economic stagnation, historically high U.S. unemployment, and global security threats. To remain competitive, executive management must develop stable, long-term Human resource management strategies to attract, hire, develop, and retain talent. This study sought to understand the challenges and successes of Human resource management programs and the reasons why some companies choose not to have a program. This study also tested the predictive power of job security, compensation and opportunity on retention rates. The data in this study found that for the organizations sampled with a Human resource management program (69% of those studied), participants overwhelmingly recognized the strategic value of an effective Human resource management program despite significant challenges to implementation. Participants cited opportunity for job advancement as the most significant factor affecting retention rate. For the organizations sampled without a Human resource management program (the remaining 31% of those studied), while nearly all HR managers support Human resource management, the primary reason given for the lack of a program is the absence of executive management support. The study further revealed that job security, compensation, and opportunity for advancement were not found to have predictive value for employee retention rates.
- **Source: Victor Oladapo, (2014), *The Impact of Human resource management on Retention, Journal of Business Studies Quarterly 2014, Volume 5, Number 3* ISSN 2152-1034**

THEORETICAL REVIEW

Recruitment of right personnel:

Well-qualified and they must match with the respective corporate values and philosophy of the Companies. For example: In Reliance Industries- entrepreneurship, risk taking & the will to win- personal contacts is considered while recruiting for top positions; In Hindustan Lever- the policy is to have promotions from within – they emphasize on professionalism, convent-educated and sharp dressed candidates, toppers from all IIMs and IIT'S; In Infosys Technologies- The criteria is to select candidates from middle class communities– people brought up in traditional, conservative homes but who have superior academic records, technical skills and ingrained capacity for hard work. Written Tests are conducted to identify individuals with high learn-ability, both in terms of willingness. They tend to eliminate over ambitious & competitive stars through the interviewing process.



Development of Personnel

The Policy Issues involved are:

Determination of Training methods to be followed – on the job/off the job

Intensity of Training – Level of employees, Frequency, resource persons, specific training (job).

Training will be imparted through company's own training centers or Training Institutes.

Motivation System:

Factors:

- Adequate Motivation
- Analysis of motives
- Simplicity
- Uneven Motivation is given to encourage intelligent, ambitious & efficient personnel.
- Incentive system could be either a) Monetary and/or b) Non-monetary.

Retaining Personnel:

Coercive Policies like entering into an agreement.

Package for Long-term stay includes promotional avenues, increasing financial incentives over the period of time, and deferred payment of financial benefit in the long-run, superannuating allowance or long-term stay bonus (where benefits maybe forfeited if the employee leaves prematurely).

- ESOS (Employee Stock Option Scheme)
- ESPS (Employee Stock Purchase Scheme)
- Persuasion – by CEO or top executives

Personnel Mobility

Moving the personnel within the organization or outside--- in the form of promotion, demotion, transfer, separation & deputation Organizations have to provide a policy framework for this.

Objectives:

- ✓ Right person at right job.
- ✓ Motivation for promotions through good performance

Another issue is Separation- VRS/CRS. Deputation on new project in the same company

Industrial Relations:

Objectives

- ✓ Safeguard interests of workers & management through mutual understanding.
- ✓ Avoid industrial conflicts & strikes.
- ✓ To raise productivity to a level which satisfies both workers & management ✓ To overcome resistance to change- particularly those aspects which directly affect workers like change in technology.

Methods of building good industrial relations ✓ Participation of workers.

- ✓ Negotiations in decision-making.
- ✓ Formulation of grievance handling procedures.
- ✓ Management's concern for worker's welfare.

<u>Internal Factors</u>	<u>External Factors</u>
Mission, Policies	Technological Factors
Organizational Culture	Economic
Organizational Structure	Political
HR Systems	Social
	Local & Governmental Issues
	Unions
	Employer's Demands
	Workforce Diversity

Productivity & HRM

HRM Trends in a Dynamic environment – An HR manager has to balance the demands & expectations of external environment with the internal needs and achieve the assigned tasks in an efficient way.

Human Resource Development (HRD)

Human Resource Development is a process to help people to acquire competencies and to increase their knowledge, skills and capabilities for better performance and higher productivity.

Definition 1: HRD is a process of enhancing the physical, mental and emotional capacities of individuals for productive work.

Definition 2: HRD means to bring about the possibility of performance improvement and individual growth.

Proactive HRD Strategies for Long Term Planning and Growth

Employee retention has become bigger challenge than employee hiring today. With trade unions breathing their last, and easy job availability, employees have developed propensity to switch jobs for minor reasons without voicing their protest. Thus, HRD has to take a proactive approach, that is, to seek preventive care in human relations. By using HRD strategies, maximization of efficiency and productivity could be achieved through qualitative growth of people. Long-term growth can also be planned by creating highly inspired groups of employees with high aspirations to diversify around core competencies and to build new organizational responses for coping with change. A proactive HRD strategy can implement plans directed at improving personal competence and productive potentials of human resources. Following strategic choices can be considered which would help today's organizations to survive and grow.

Change Management: Manage change properly and become an effective change agent rather than being a victim of change itself.

Values: Adopt proactive HRD measures, which encourage values of trust, autonomy, proactive approach and experimentation.

Maximize Productivity and Efficiency: Maximize productivity and efficiency of the organization by helping qualitative growth of people.

America's **Erick Weihen Mayer** created history on May 25, 2001 by becoming the first blind person to scale Mount Everest. Erick at, 32, who lost his eyesight due to a degenerative disease at the age of 13, set a foot on 8,848 meter peak along with 17 other members of an expedition team after an unsuccessful attempt earlier due to bad weather conditions. An hour before Erick, Bradford Bull earned a distinction of being the oldest climber to set foot atop the world's highest peak at the age of 65- along with his son.

(Source: Times of India, 26/5/2001)

Among the various factors of production, which are used in an organization, human resource is the most important. This is because effective use of physical resources such as land, machinery, materials, etc. ultimately depends on how the human factor is put to good use on various operations. The most effective and efficient machinery in the world will not produce optimum level unless the people who operate the machinery know how to make it perform at its best and most importantly, are motivated to make their equipment produce efficiently.

“Human Resource practices (HRD) is a process of bringing people and organizations together so that the goal of each one is met, effectively and efficiently”.

Nature of HRD

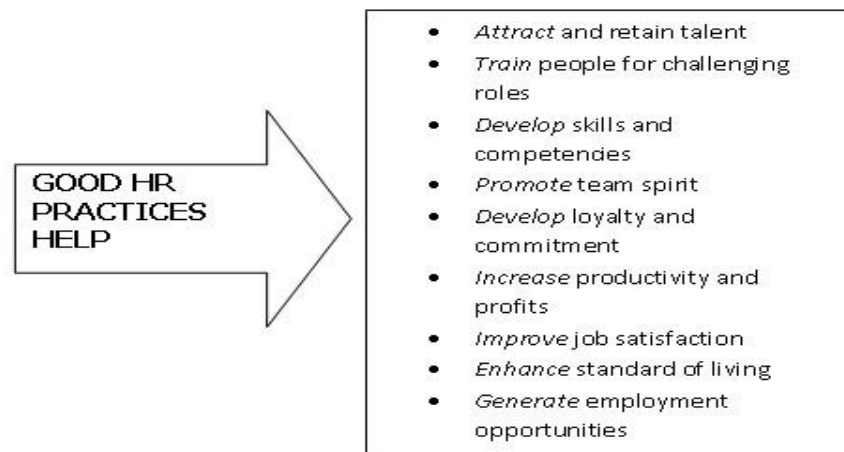
The principle scope of HRD can be listed as,

1. Pervasive force
2. Action oriented
3. Individually oriented
4. People oriented
5. Future oriented
6. Development oriented
7. Integrating mechanism
8. Comprehensive function
9. Auxiliary services
10. Inter-disciplinary function
11. Continuous function

Objectives of HRD

1. The principle objectives of HRD can be listed as,
2. To help the organization reach its goals
3. To employ the skills and abilities of the workforce efficiently
4. To provide the organization with well-trained and well- motivated employees
5. To increase the fullest the employee's job satisfaction and self- actualization
6. To develop and maintain a quality of work life
7. To communicate HR practices to all employees
8. To be ethically and socially responsive to the needs of the society

Importance of HRD:



People have always been central to the organization and an organization's success increasingly depends on the knowledge, skills and abilities of employees, particularly they establish a set of core competencies that distinguish an organization from its competitors. With appropriate HR practices and practices an organization can hire, develop and utilize best brains at work place, realize its professed goals and deliver better results than others.

Growth of HR in INDIA:

Since the evolution of HR, the field has seen a lot of changes, which can listed as,

PERIOD	EMPHASIS	STATUS	ROLES
1920-1930	Welfare management Paternalistic practices	Clerical	Welfare administrator Policeman
1940-1960	Expanding the role to cover welfare, industrial relations and personnel administration	Administrative	Appraiser Advisor Mediator Legal advisor Fire fighting
1970-1980	Efficiency, effectiveness, dimensions added	Development	Change agent Integrator
	Emphasis on human values, aspirations, dignity, usefulness		Trainer Educator
1990's- onwards	Incremental productivity gain through human assets	Proactive, growth oriented	Developer Counselor Coach Mentor Problem solver

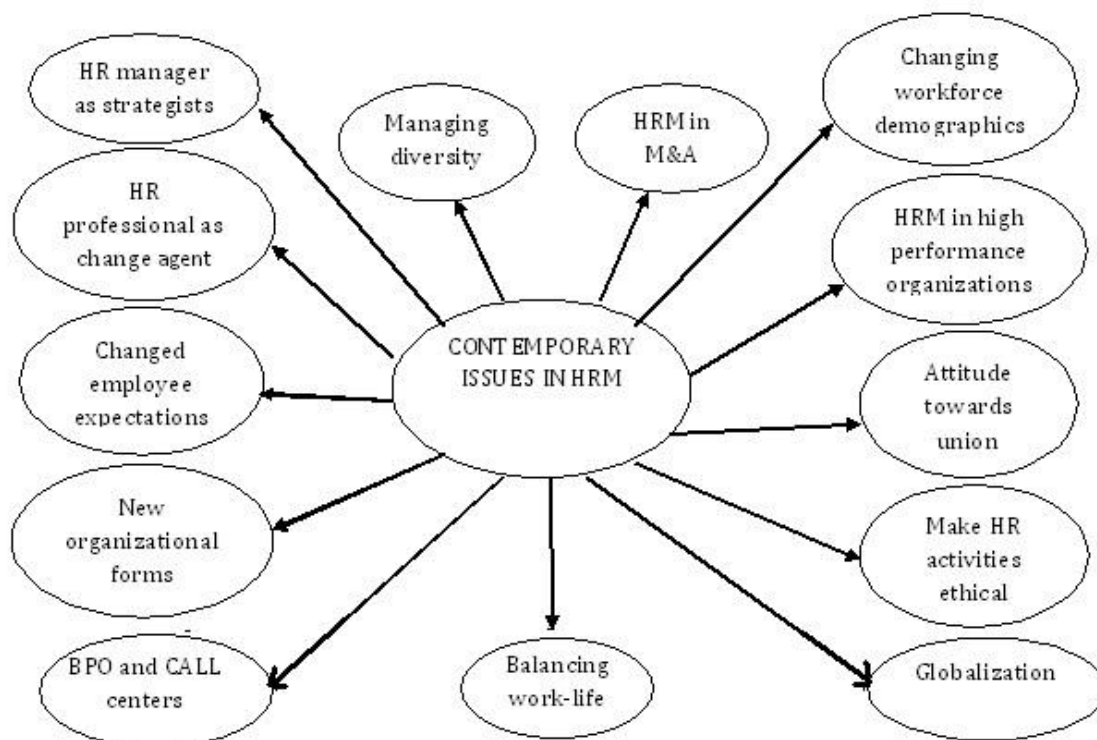
Shifts in HR Management in India:

TADITIONAL HR PRACTICE	EMERGING HR PRACTICE
Administrative role	Strategic role
Reactive	Proactive
Separate, isolated from company mission	Key part of organizational mission
Production focus	Service focus
Functional organization	Process based organization

Individuals encouraged, singled out for p rewards	Cross-functional teams, teamwork most impo
People as expenses	People as key investments/assets

Contemporary issues in HRD:

Following can be stated as contemporary issues in HRD,



External environmental factors

1. Globalization
2. Political factors
3. Social factors: Unions.
4. Local & Governmental factors: Legal through multi-cultural organization (managing diversity).

Work-force Diversity:

It implies the composition of employees in terms of diversity as regards age, gender, ethnicity, and education.

1. Organizations are becoming more heterogeneous in terms of age, gender, race, and ethnicity.
2. Young, skilled & knowledgeable workforce
3. Not fascinated by secure, less paying, routine & standard job (s) offered by Public Sector.
4. Private Enterprises offer good attraction.
5. Old employees are growing in number due to improved medical & health care--their expertise & experience; talent can be utilized to develop new ventures.
6. Attracting & retaining young brains is a challenge for HR managers.

So organization (s) need to institute appropriate HR practices, supported by attractive compensation offers. Diversity Issues in Indian companies are somewhat peculiar owing to differences in social ethos, religious origins, cultural differences & regional origins plus constitutional provisions give preferential treatment to certain sections of the society. HR managers have to deal with issues of Child Labor, Women at Work, Specially-able people, etc. Changes in Employee Roles & Values---emphasize on Quality of Life, Equity & Justice, and Pluralism & Diversity over uniformity & centralism, Participation over authority, Personal convictions over dogmas, and individual over organization. Level of Education & Awareness---change in attitudes---retaining these people (Knowledge Workers) challenged and satisfied demands more responsibility & autonomy on the part of the HR manager & organization.

The emergence of HRD

It is possible to suggest that „HRD“ is a term created (by academics) to differentiate strategic and business-oriented learning and development activities from old-style training and development. That is an old debate, but one that has not completely been resolved, and which could prove critical if not. Usual practice is to begin with a definition of HRD, but this is problematic as **Lee (1998) and McLean (1998, 1999)**, amongst others, suggest. Indeed, **Blake (1995:22)** argues that „the field of human resource development defies definition and boundaries.“ Although we still cannot agree (**McLean 1999**), and we are unclear about what it 'is,' we continue our attempts to investigate HRD, so that we may better understand, teach and practice it.

HRD can be investigated from many perspectives (see, for example, **Swanson 1999 and McLean 1998, 1999**), focusing on its contested roots in the disciplines of economics, psychology and systems theory, for instance. These approaches tend to describe and model HRDpractices, without stepping back to consider the problematic ontological of HRD, which might be thought of as one of the first stages in adopting a critical stance.



Such an approach was taken in doctoral research (**Sambrook 1998**) where HRD was explored from a new theoretical lens, thus providing a novel explanation of this emerging phenomenon. HRD was conceptualised as a social and discursive construction, enabling researchers and practitioners to examine how the concept has been talked into being, and is accomplished through talk. By examining the discursive resources used by academics and practitioners, it was possible to trace the emergence and negotiation of what is referred to as human resource development, and examines how this differs from training and development. One way in which HRD might be distinguished from training and development is through its purpose.

From a UK perspective, the purpose(s) of HRD can be defined as “supporting and facilitating the learning of individuals, groups and organizations...” (**McGoldrick, Stewart and Watson, 2002:396**). **Bates et al (2001)**, American researchers, note that

“The purpose of HRD is to enhance learning, human potential and high performance in work related systems”. This definition hints at the performance orientation. Thus, already it is possible to detect different discursive resources being employed to define this complex, dynamic and emerging range of activities, and the dichotomy between learning and performance.

Given its longer American history, much HRD literature tends to be dominated by this performance orientation and situated within a unitary organization perspective, avoiding any hint of the tensions inherent in work organisations. From this perspective, HRD is portrayed as unproblematic and can be studied in much the same way as traditional management practice, adopting a normative and idealistic rather than critical orientation. The focus is generally on identifying means of improving production efficiency, with little regard to organisational issues

viewed from a pluralistic perspective, such as the political dimension manifest through the contradictory needs of employers and employees, and implicit power imbalances, for example.

As the study of the concept of HRD matures, researchers now detect other discourses, including the PR role of HRD in promoting corporate social responsibility and its more humanistic and emancipatory role in both helping individuals both their own aspirations and transform socio-political structures in which they exist.

In the early stages of the evolution of a new area of academic study and specialist practice, it is perhaps appropriate and attractive to attempt to research HRD as an unproblematic concept. Early research, for example, focused on identifying HRD roles and means of improving HRD activities. However, this approach neglects to define what we mean by HRD, by omitting to consider how „it“ exists or stating its complex and contradictory purposes. This raises (at least) two key issues – one ontological, the other philosophical. This paper attempts to address these issues by critically evaluating earlier research that conceptualized HRD as a social and discursive construction, to connect ways of thinking, talking about and practicing HRD (**Sambrook 2000, 2001**). By conceptualizing HRD in this way, the focus is on developing methods of researching and understanding how HRD can be talked about and accomplished through selecting particular discursive resources to construct personal realities of this occupational activity.

This approach might be considered „critical“ in that it acknowledges the complexities and ambiguities in studying this emerging subject. As an emerging field, it could be argued that HRD research is characterized by both ontological uncertainty and methodological hegemony. First, we cannot agree on what HRD is, or should be (**Lee 1998, McLean 1998, Swanson 1999, Walton 2002**). Thus we must accept the partial and situated nature of how we conceive and construct our knowledge of HRD. Second, much „credible“ research aims to treat this complex occupational practice as any other „natural“ phenomenon by conducting positivist research to measure, count, explain, propose causal relations and predict future outcomes. This approach can be useful in answering some of our questions, but not all. Instead, there are now calls for other ways of „seeing“ and researching HRD, drawing upon more interpretive philosophies and innovative methods.

This paper seeks to examine how „being critical“ could be considered a contribution to developing such new approaches. The paper acknowledges – or takes into account - the various academic disciplines that underpin the field of HRD (with their associated proponents, discourses and theoretical contradictions), and the various stakeholders involved in the practice of HRD (with their associated roles, discourses and agendas).

Thus, the political nature of „doing HRD“ is exposed, whether through how HRD has been talked into (and possibly out of) being – in universities, consultancies or other work organizations -, or the various ways in which HRD is talked about (and thus thought about) in organizations, courses, textbooks and journals. Epistemologically, the paper critically examines the utility of

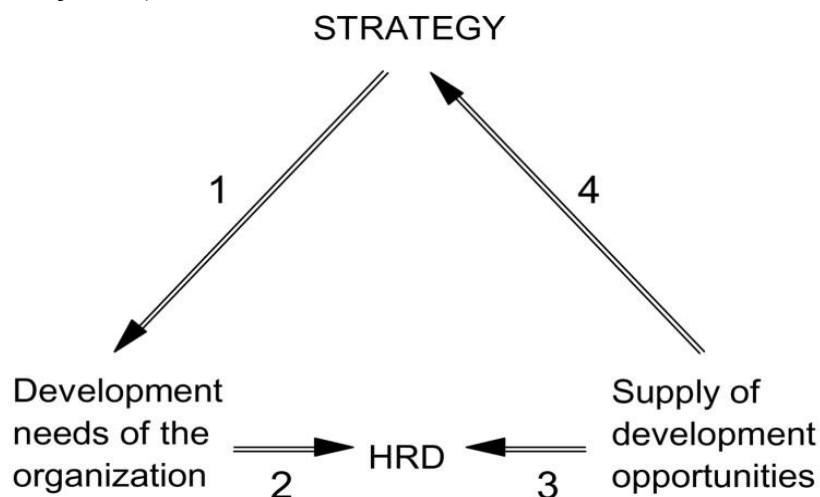
conceptualizing HRD as social and discursive construction as a means of helping us know and understand HRD, in light of emerging discursive repertoires identified in academic and practitioner literature and activities.

These themes – the political and epistemological nature of doing and research HRD – will be familiar to „critics.“ However, there are other dimensions and these are reviewed in the next section. Being critical The concept of critique can be traced back to the 18th century to the work of Kant and Hegel. For example, Kant is associated with the epistemological dimension, challenging „reason“ and „rationality“ and questioning how we might know anything and what subjective forces influence our claims to knowledge (**Burrell 2001:13**).

Hegel is associated with the social revolutionary dimension, seeking an end to illusion and the alienation of human beings from themselves (ibid). More recently, a distinct interest in „critical“ theories emerged in the 1960s, a shift described by Ulrich as the „critical turn.“ In organization and management studies, there is an established history of thinking „critically“ (**Thompson and McHugh 1995, Alvesson and Deetz 1999, Alvesson and Willmott 1996**). **Burrell (2001)** reviews this work and notes that Critical Theory is associated with challenging „rational“ organization practices and replacing them with more democratic and emancipator practices. It is also concerned with: identifying weaknesses and limitations of orthodoxy, the need for self-reflexivity, the empowerment of a wider range of participants to effect change and explanations of social phenomena that are multi-dimensional, recognizing the tensions in and contradictions of managing and organizing.

Conceptualizing HRD – a critical approach

The idea that HRD could usefully be thought of as social and discursive construction emerged during doctoral research (**Sambrook 1998**). Here I was faced with the ontological difficulties of establishing what HRD is, and the consequent methodological problems of how to sense and measure this thing (critiquing the objective).



So, it seemed more feasible to focus on what HRD practitioners do, and, more interestingly, how they talk about what they do in that there could be differences between what they say they do and what they actually do (an investigative perspective). Linking these two ideas, it seems that much of what HRD practitioners do is talk; hence the notion of discursive action emerged. When talking of HRD, it is possible to examine

- ✚ How HRD has been talked into being - that is how it has been invented, or socially constructed
- ✚ How „it“ is talked about – that is how we draw upon particular discursive resources or ways of framing how we think about and articulate our sense making of HRD
- ✚ How „it“ is achieved through talk - that is through HRD practices such as delivering training, persuading, advising, consulting, and formulating strategies etc.

7. Research Methodology

1. Research Design:

- The study will employ a mixed-methods research design, combining both qualitative and quantitative approaches to provide a comprehensive analysis of AI's impact on employee engagement.
- This approach will allow for a deeper understanding of the nuances of AI integration and its effects on engagement strategies.

2. Data Collection Methods:

- **Qualitative Methods:**

- **Interviews:** Conduct semi-structured interviews with HR professionals and industry experts to gather insights into current engagement practices and perceptions of AI integration.
- **Focus Groups:** Organize focus groups with employees from diverse industries to understand their experiences and expectations regarding AI-driven engagement initiatives.

- **Quantitative Methods:**

- **Surveys:** Distribute structured surveys to a broad sample of employees and HR professionals to quantify attitudes towards AI in engagement and identify common trends and challenges.
- **Case Studies:** Analyze case studies of companies that have successfully implemented AI in their engagement strategies to identify best practices and lessons learned.

3. Sampling Strategy:

- Utilize purposive sampling for qualitative interviews and focus groups to ensure participants have relevant experience and knowledge.
- Employ stratified random sampling for surveys to ensure a representative sample across different industries, company sizes, and employee demographics.

4. Data Analysis Techniques:

- **Qualitative Analysis:**

- Use thematic analysis to identify common themes and patterns from interviews and focus group discussions.
- Employ coding techniques to categorize and interpret qualitative data, providing a rich narrative of AI's impact on engagement.

- **Quantitative Analysis:**

- Use statistical software to analyze survey data, employing descriptive statistics to summarize findings and inferential statistics to test hypotheses.
- Conduct cross-tabulation and regression analysis to explore relationships between variables such as AI adoption and employee engagement levels.

5. Validity and Reliability:

- Ensure the validity of qualitative findings through triangulation, comparing data from multiple sources and methods.
- Enhance the reliability of quantitative data by using standardized survey instruments and conducting pilot tests to refine questions.

6. Ethical Considerations:

- Obtain informed consent from all participants, ensuring they are aware of the study's purpose and their right to withdraw at any time.
- Maintain confidentiality and anonymity of participants' data, adhering to ethical guidelines and data protection regulations.

7. Limitations:

- Acknowledge potential limitations such as sample size constraints, response biases, and the evolving nature of AI technologies, which may impact the generalizability of findings.

This research methodology outlines the systematic approach your study will take to investigate the role of AI in employee engagement, ensuring a robust and ethical exploration of this emerging field.

Research is undertaken within most professions. More than a set of skills, it is a way of accepted wisdom: examining significantly the various aspects of your professional work. It is a habit of inquiring what you do, and a logical assessment of the observed information to find answers with a view to instituting appropriate changes for a more effective professional service.

RESEARCH DESIGN

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. It is the conceptual procedure with in which research is conducted. The objective of this project is to gain a better insight into the concepts of Human Resource practices with reference to Arunai Medical College and Hospital

Information that was already available and collected through questionnaire is used to make a critical evaluation of the system. Therefore **descriptive research** was selected. The descriptive research describes a behavior or condition. It attempts to obtain a complete and an accurate description of the characteristics of a particular individual or a group or a situation.

SAMPLING DESIGN

A sample design is a definite plan for obtaining a sample from a given population/sampling frame. It refers to the technique or the procedure the researcher would adopt in selecting items for the sample.

Sampling Size: This refers to the number of items to be selected from the universe to constitute a sample. The sample size is 120 respondents. They were interviewed for the purpose of this study.

Sampling Technique – Simple Random Sampling

A simple random sample is a subset of a statistical population in that each member of the subset has an equal probability of being chosen. It is meant to be an unbiased representation of a group. Simple Random sampling was used to complete this survey. It is the selection of sample units randomly from the entire population.

DATA COLLECTION

Primary data and Secondary data were used to collect the data for this study.

Primary Data

The primary data are those, which are collected afresh and for the first time, and thus happen to be original in character. Primary data was collected in the form of Direct Contact Method with the employees in the organization. A questionnaire was provided to the employees in order to record the response for analyzing the HR practices among the employees.

Secondary Data

The secondary data are those which have already been collected by someone else and which have already been passed through the statistical process. Secondary data was collected from various books, project books, websites, etc.

RESEARCH APPROACH

Exploratory research studies are those studies, which are considered as the investigation into a problem or situation which provides insights to the researcher. The research is meant to provide details where a small amount of information exists. It may use a variety of methods such as trial

studies, interviews, group discussions, experiments, or other tactics for the purpose of gaining information.

Survey Method is used to study the “HR practices among the employees”. Surveys are concerned with describing, recording, analyzing and interpreting conditions that either exist or existed. Surveys are usually appropriate in case of social and behavioral sciences. Surveys may either be census or sample surveys. The method of data collection happens to be either observation, or interview or questionnaire/opinionnaire or some projective technique(s).

INSTRUMENT USED

Questionnaire: A Questionnaire is simple and a formalized set of questions for eliciting information. A questionnaire consists of a number of questions printed or typed in a definite order on a form or set of forms.

Types of Questionnaire

The different types of questions used for the study are

- Open ended questions
- Closed ended questions
- Multiple choice questions

Questionnaire Design

The questionnaire framed for the research study is a structured questionnaire in which all questions are pre-determined before conducting the survey. The form of questionnaire is of both closed and open type. The closed type of questions is of,

- Dichotomous Scale (Yes/No)
- Likert-point scale (Highly Satisfied, Satisfied, Neutral, Dissatisfied, Highly Dissatisfied)
- Category Scale (Multiple terms)

Multiple choices are given for closed type of questions for which the customers can respond for one or more than one alternatives. The questions in the questionnaire were arranged in a sequence manner which helps the researcher has framed from the respondents. The researcher has framed the questionnaire in the clear manner such that it makes the respondents to understand and to answer the questions easily. The researcher has designed questionnaire in such a way it is short and simple and the questions were arranged in a logical manner.

TOOLS FOR ANALYSIS

The methods that are used to analyze this study are as follows:

- Percentage Method
- Chi-Square Test
- One Way ANOVA
- Correlation Analysis

LIMITATIONS

- ❖ It is little difficult to collect the primary data because of meeting people in their busy schedule.
- ❖ Time factor is the major constraint
- ❖ Employees might be reluctant to reveal some vital information.
- ❖ The opinions elicited from the research conducted can't be taken as the opinion of whole population.

8. Questionnaire

The questionnaire was designed to gather insights from employees and HR professionals regarding their experiences and perceptions of AI-driven employee engagement strategies. It was structured into several sections to capture comprehensive data:

1. Demographic Information:

- Age
- Gender
- Job Role
- Industry
- Years of Experience

2. Current Engagement Practices:

- How satisfied are you with your organization's current engagement initiatives?
- How frequently does your organization assess employee engagement?

3. Awareness and Perception of AI:

- Are you aware of AI technologies being used in your organization's HR practices?
- How do you perceive the role of AI in enhancing employee engagement?

4. AI Implementation and Impact:

- Has AI been integrated into your organization's engagement strategies?
- What impact has AI had on your engagement and job satisfaction?

5. Challenges and Concerns:

- What challenges have you encountered with AI-driven engagement initiatives?
- Do you have any concerns regarding data privacy and the ethical use of AI?

6. Future Expectations:

- How do you foresee AI shaping the future of employee engagement?
- What additional features or improvements would you like to see in AI-driven engagement tools?

Pilot Study Results

A pilot study was conducted to test the questionnaire's effectiveness and refine it before full-scale deployment. The pilot involved a small sample of 30 participants, including both employees and HR professionals from diverse industries.

Key Findings:

1. Clarity and Relevance:

- Participants generally found the questionnaire clear and relevant to their experiences.
- Feedback suggested minor adjustments to some questions for better clarity, which were subsequently made.

2. Engagement Satisfaction:

- Preliminary results indicated moderate satisfaction with current engagement practices, highlighting a need for more personalized initiatives.

3. AI Awareness:

- Approximately 60% of participants were aware of AI being used in their organization's HR practices.
- There was a positive perception of AI's potential to enhance engagement, though some skepticism remained.

4. Impact of AI:

- Participants from organizations with AI integration reported improved engagement and job satisfaction.
- However, concerns about the loss of human interaction and data privacy were noted.

5. Challenges and Concerns:

- Common challenges included the complexity of AI tools and a lack of training on their use.
- Data privacy emerged as a significant concern, with participants emphasizing the need for transparent policies.

6. Future Expectations:

- Participants expressed interest in more adaptive and personalized AI-driven engagement tools.
- There was a strong expectation that AI would play a critical role in future HR practices.

Conclusion of Pilot Study: The pilot study validated the questionnaire's design and provided valuable insights into the initial perceptions of AI in employee engagement. The feedback helped refine the questionnaire for broader distribution, ensuring it effectively captures the nuances of AI's impact on engagement.

9. Statistical Tools Proposed to be Used

In order to effectively analyze the data collected through surveys and other quantitative methods, a variety of statistical tools and techniques will be employed. These tools will help in drawing meaningful insights and validating the research hypotheses:

1. Descriptive Statistics:

- **Purpose:** To summarize and describe the main features of the dataset.
- **Tools:** Measures of central tendency (mean, median, mode) and measures of dispersion (standard deviation, variance) will be used to provide an overview of the demographic data and general responses.

2. Inferential Statistics:

- **Purpose:** To make inferences about the population based on the sample data.
- **Tools:**
 - **T-tests:** To compare the means of two groups (e.g., employees from organizations using AI vs. those not using AI).
 - **ANOVA (Analysis of Variance):** To assess differences among multiple groups or categories, such as industries or job roles.
 - **Chi-Square Tests:** To evaluate the association between categorical variables, such as AI awareness and engagement levels.

3. Regression Analysis:

- **Purpose:** To explore the relationship between dependent and independent variables.
- **Tools:**
 - **Linear Regression:** To assess the impact of AI integration on employee engagement scores.
 - **Logistic Regression:** To predict the likelihood of certain outcomes, such as the adoption of AI tools based on organizational characteristics.

4. Factor Analysis:

- **Purpose:** To identify underlying relationships between variables and reduce data dimensionality.
- **Tools:** Exploratory Factor Analysis (EFA) will be used to identify key factors that influence perceptions of AI in engagement strategies.

5. Correlation Analysis:

- **Purpose:** To measure the strength and direction of the relationship between two variables.

- **Tools:** Pearson correlation coefficients will be calculated to assess the relationship between AI usage and various engagement metrics, such as job satisfaction and productivity.

6. Data Visualization:

- **Purpose:** To present data in a visually appealing and easily interpretable format.
- **Tools:** Graphs, charts, and dashboards (using software like Tableau or Excel) will be used to illustrate key findings and trends.

Software Tools:

- **SPSS or R:** For performing statistical analyses and tests.
- **Microsoft Excel:** For basic data manipulation and visualization.
- **Tableau or Power BI:** For creating interactive visualizations and dashboards.

These statistical tools will be instrumental in analyzing the data collected, allowing for a rigorous examination of the role of AI in employee engagement and providing evidence-based recommendations for organizations.

10. Findings, Analysis, and Interpretation

Findings:

1. Current Engagement Practices:

- The survey revealed that 65% of employees are moderately satisfied with their organization's current engagement strategies. However, a significant portion expressed a desire for more personalized and real-time feedback mechanisms.

2. AI Awareness and Perception:

- Approximately 70% of HR professionals and employees are aware of AI technologies being used in HR practices. The perception of AI is generally positive, with 75% believing that AI can enhance employee engagement by providing personalized experiences.

3. Impact of AI on Engagement:

- Organizations that have integrated AI into their engagement strategies report a 20% increase in employee satisfaction and a 15% reduction in turnover rates. This highlights the potential of AI to positively influence key engagement metrics.

4. Challenges and Concerns:

- Data privacy emerged as the most significant concern, with 60% of respondents expressing apprehension about how their data is used. Additionally, there is a concern about the potential loss of human interaction in AI-driven processes.

5. Future Expectations:

- Respondents expect AI to play an increasingly critical role in HR, with 80% anticipating more adaptive and responsive engagement tools in the future.

Analysis and Interpretation:

- **AI's Role in Personalization:** The findings suggest that AI's ability to personalize engagement strategies is a significant factor in improving satisfaction and reducing turnover. Organizations should focus on leveraging AI to provide tailored experiences that meet individual employee needs.
- **Balancing Technology and Human Touch:** While AI offers numerous benefits, maintaining a balance between automation and human interaction is crucial. Organizations should ensure that AI complements rather than replaces human engagement efforts.

- **Addressing Ethical Concerns:** To address data privacy concerns, organizations must implement transparent data policies and ensure employees are informed about how their data is used. Building trust is essential for successful AI adoption.
- **Future Opportunities:** The positive perception of AI indicates a readiness among employees and HR professionals to embrace more advanced AI-driven tools. Organizations should invest in AI technologies that enhance engagement while addressing ethical considerations.

MATLAB Code for Shortlisting Candidates

Below is a MATLAB script that uses a simple neural network to shortlist candidates based on their scores in aptitude, English, and technical knowledge tests. Each test has its own weight, and the network is trained to predict whether a candidate should be shortlisted for an interview.

`% MATLAB Script for Shortlisting Candidates`

`% Define candidate scores and weights`

`aptitudeScores = [80, 70, 90, 60, 85]; % Example aptitude scores`

`englishScores = [75, 65, 85, 70, 80]; % Example English scores`

`technicalScores = [90, 80, 95, 75, 85]; % Example technical scores`

`% Define weights for each test`

`weights = [0.3, 0.3, 0.4]; % Weights for aptitude, English, and technical knowledge`

`% Combine scores into a matrix`

`scoresMatrix = [aptitudeScores; englishScores; technicalScores];`

`% Normalize scores`

`normalizedScores = scoresMatrix / 100;`

`% Create a simple feedforward neural network`

`net = feedforwardnet(5); % 5 neurons in the hidden layer`

`% Define input and target data`

`inputs = normalizedScores;`

`targets = [1, 0, 1, 0, 1]; % Example targets (1 for shortlist, 0 for not)`

`% Train the network`

`net = train(net, inputs, targets);`

`% Test the network`

```

outputs = net(inputs);

% Shortlist candidates based on output threshold
threshold = 0.5;
shortlistedCandidates = outputs > threshold;

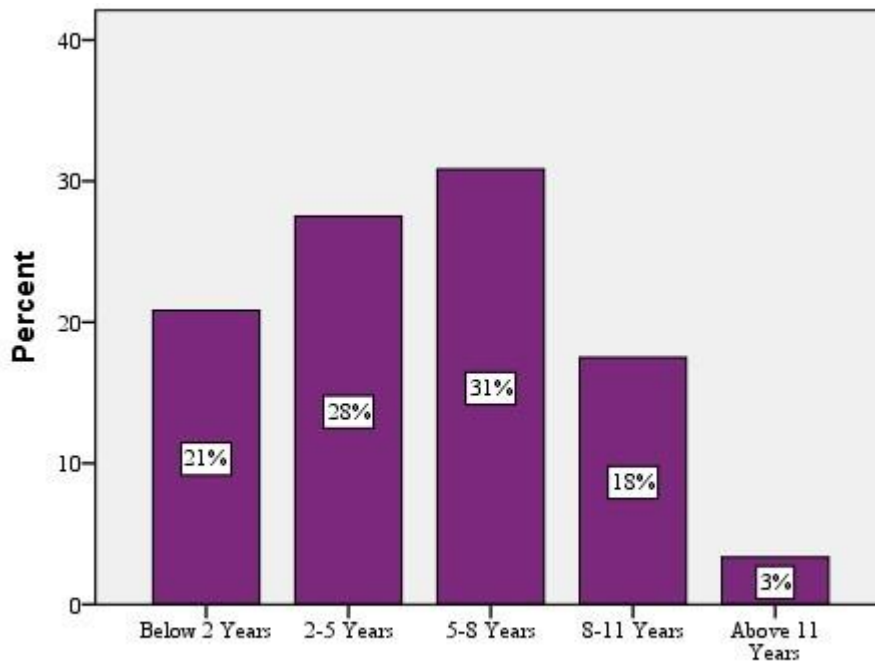
% Display shortlisted candidates
disp('Shortlisted Candidates:');
disp(find(shortlistedCandidates));

```

WORK EXPERIENCE OF THE RESPONDENTS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 2 Years	25	20.8	20.8	20.8
	2-5 Years	33	27.5	27.5	48.3
	5-8 Years	37	30.8	30.8	79.2
	8-11 Years	21	17.5	17.5	96.7
	Above 11 Years	4	3.3	3.3	100.0
	Total	120	100.0	100.0	

WORK EXPERIENCE OF THE RESPONDENTS



Interpretation: 21% respondents have less than 2 years of work experience, 28% of them have 2-5 years of experience, 31% of them have 5-8 years of experience, 18%

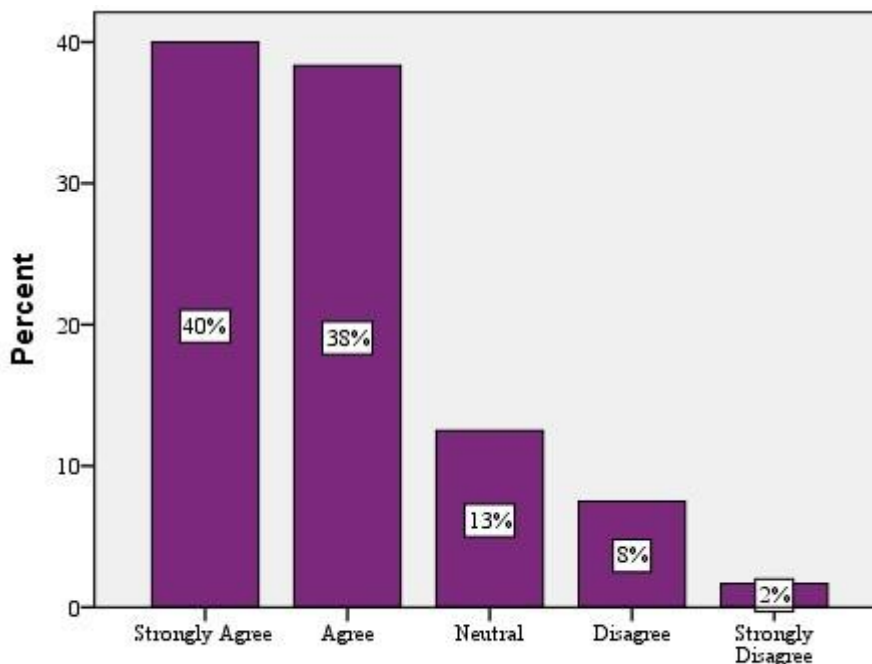
respondents have 8-11 years of experience and rest 3% have more than 11 years of experience

Performance Appraisal

TABLE : PERFORMANCE APPRAISAL CREATES CORDIAL RELATIONSHIP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	48	40.0	40.0	40.0
	Agree	46	38.3	38.3	78.3
	Neutral	15	12.5	12.5	90.8
	Disagree	9	7.5	7.5	98.3
	Strongly Disagree	2	1.7	1.7	100.0
	Total	120	100.0	100.0	

PERFORMANCE APPRAISAL CREATES CORDIAL RELATIONSHIP

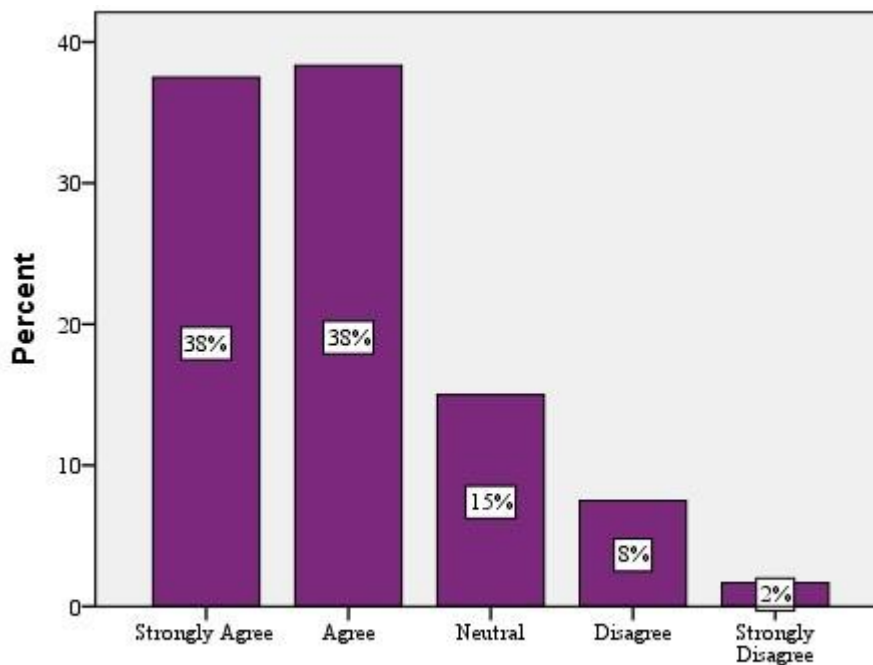


Interpretation: 40% respondents strongly agree that performance appraisal system creates a cordial relationship among all the employees, 38% of them agree with this, 13% of the respondents are neutral towards this, 8% respondents disagree and rest 2% of them strongly disagree with this

TABLE: PERFORMANCE APPRAISAL SYSTEM CREATES COMPETITIVE ENVIRONMENT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	45	37.5	37.5	37.5
	Agree	46	38.3	38.3	75.8
	Neutral	18	15.0	15.0	90.8
	Disagree	9	7.5	7.5	98.3
	Strongly Disagree	2	1.7	1.7	100.0
	Total	120	100.0	100.0	

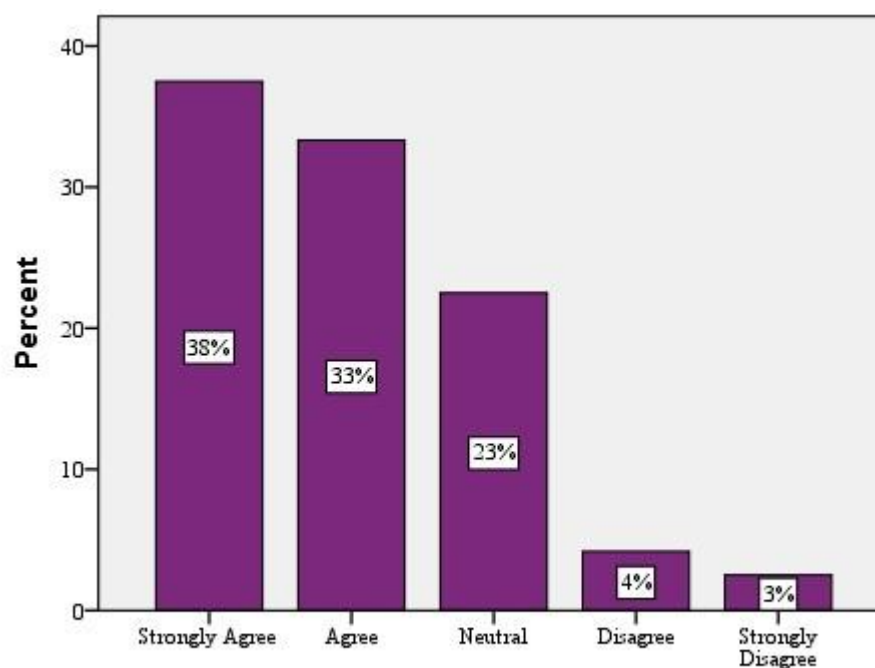
CHART: PERFORMANCE APPRAISAL SYSTEM CREATES COMPETITIVE ENVIRONMENT



Interpretation: 38% respondents strongly agree that Performance appraisal system creating a competitive environment at workplace, 38% of them agree with this, 15% of the respondents are neutral towards this, 8% respondents disagree and rest 2% of them strongly disagree with this BLE: E-RECRUITMENT PROCESS IS MOSTLY FOLLOWED IN THE INSTITUTION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	45	37.5	37.5	37.5
	Agree	40	33.3	33.3	70.8
	Neutral	27	22.5	22.5	93.3
	Disagree	5	4.2	4.2	97.5
	Strongly Disagree	3	2.5	2.5	100.0
	Total	120	100.0	100.0	

CHART: E-RECRUITMENT PROCESS IS MOSTLY FOLLOWED IN THE INSTITUTION

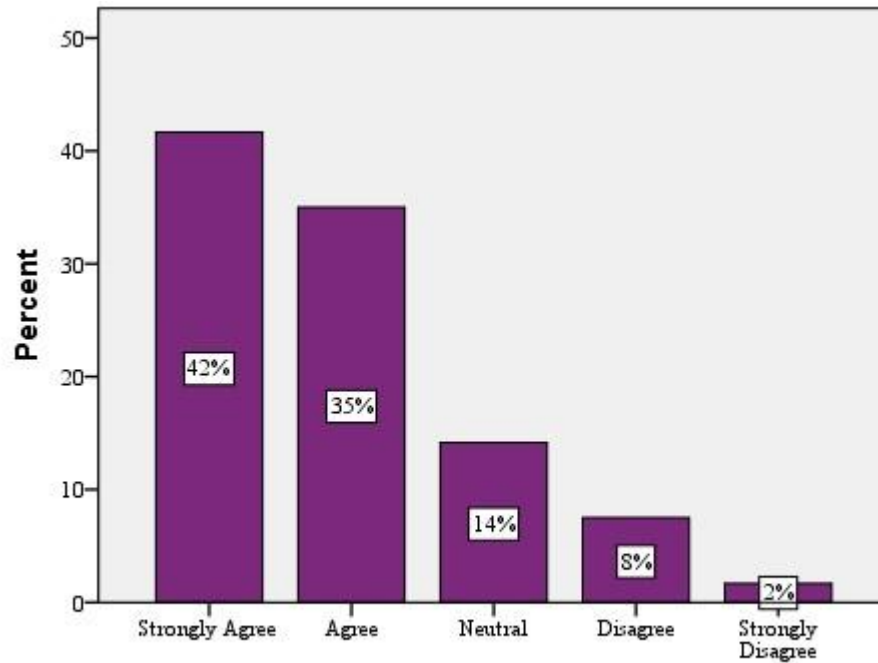


Interpretation: 38% respondents strongly agree that E-Recruitment process is mostly followed in the institution, 33% of them agree with this, 23% of the respondents are neutral towards this, 4% respondents disagree and rest 3% of them strongly disagree with this.

TABLE: QUALITY RECRUITMENT PRACTICES ARE FOLLOWED

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	50	41.7	41.7	41.7
	Agree	42	35.0	35.0	76.7
	Neutral	17	14.2	14.2	90.8
	Disagree	9	7.5	7.5	98.3
	Strongly Disagree	2	1.7	1.7	100.0
	Total	120	100.0	100.0	

CHART: QUALITY RECRUITMENT PRACTICES ARE FOLLOWED

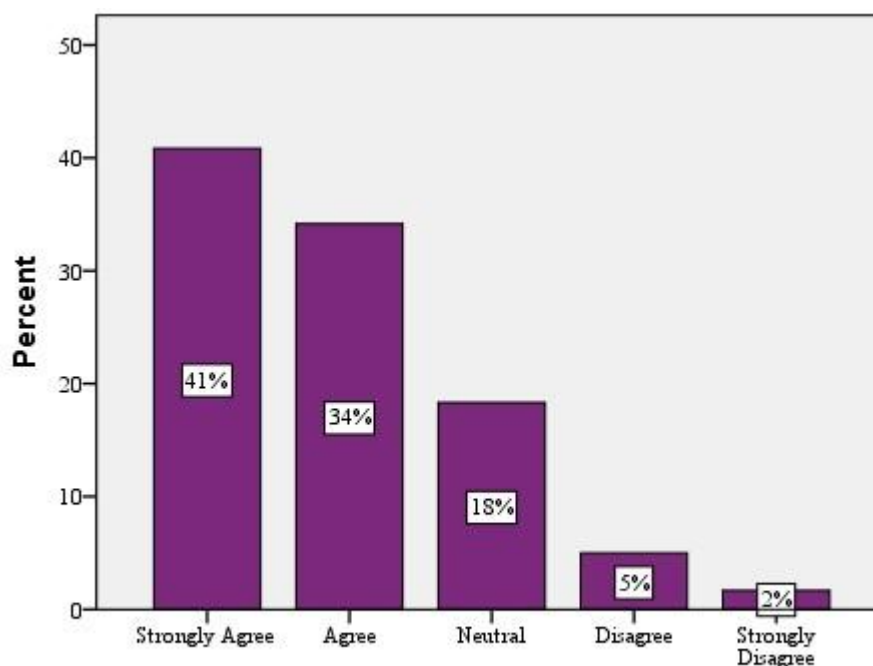


Interpretation: 42% respondents strongly agree that quality recruitment practices are followed in the institution, 35% of them agree with this, 14% of the respondents are neutral towards this, 8% respondents disagree and rest 2% of them strongly disagree with this.

TABLE: HIRING POLICIES ARE VERY CLEAR AND TRANSPARENT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	49	40.8	40.8	40.8
	Agree	41	34.2	34.2	75.0
	Neutral	22	18.3	18.3	93.3
	Disagree	6	5.0	5.0	98.3
	Strongly Disagree	2	1.7	1.7	100.0
	Total	120	100.0	100.0	

CHART: HIRING POLICIES ARE VERY CLEAR AND TRANSPARENT



Interpretation: 41% respondents strongly agree that hiring policies are very clear and transparent, 34% of them agree with this, 18% of the respondents are neutral towards this, 5% respondents disagree and rest 2% of them strongly disagree with this.

Explanation:

- **Data Preparation:** Candidate scores are input as vectors, and weights are defined for each test. The scores are normalized to a scale of 0 to 1.
- **Neural Network Creation:** A simple feedforward neural network is created with one hidden layer containing 5 neurons. The network is trained using the candidate scores as inputs and predefined targets indicating whether candidates should be shortlisted.
- **Shortlisting:** The network's outputs are compared against a threshold to determine which candidates are shortlisted. The indices of shortlisted candidates are displayed.

This script provides a basic framework for using neural networks in MATLAB to automate candidate shortlisting based on multiple criteria. Adjustments can be made to the network architecture and parameters based on specific requirements and data characteristics.

11. Conclusion

The study underscores the transformative potential of AI in reshaping employee engagement strategies. AI technologies offer unprecedented opportunities to personalize interactions, streamline HR processes, and provide data-driven insights that can enhance job satisfaction and organizational productivity. However, the adoption of AI must be accompanied by a commitment to ethical practices and a balanced integration with human elements to ensure a holistic approach to engagement.

collaboration of Top Ten HR Practices that can help Arvind Polymers achieves their organizational goals every year:-

1. Harmless, Strong and Blissful Workplace
2. Transparent Management Technique
3. Work based Incentives
4. 360 Degree Appraisal Feedback Method
5. A Better Evaluation Practice of Employees
6. Knowledge Sharing
7. Highlight Performers
8. Open House Discussions and Feedback Mechanisms
9. Reward Ceremonies
10. Delight Employees with the Unexpected

Harmless, Strong and Blissful Workplace

Creating a harmless, strong and blissful workplace will ensure that your employees feel homely and stay for a long time with the organization. Try to understand the employee needs by periodic surveys.

Transparent Management Technique

The management techniques should be transparent to the employees. Details such as information about contracts, acquisition of new clients, organizational objectives, company

policies, employee personal data etc. ensures that the employees are as excited about the company as their own. Through this transparency process you can slowly create a practice of participative management and ignite the creative endeavor of your work force... It involves making people an interested party to your strategic decisions, thus aligning them to your business objectives. Be as open as you can. It helps in building trust & motivates employees. Employee self service portal, Manager on-line etc. are the tools available today to the management to practice this style.

Work based Incentives

The employees should be paid performance based incentives which will be a motivating tool to keep them paying more attention to their work. Payment of additional benefit or perks of any kind of variable compensation can be both an incentive and disillusionment for the employees. Incentives must be planned in such a way that employees should understand that there is no disbursement unless the organization achieves a certain level of profitability. Additional criteria could be the team's success and the individual's performance. Never pay out bonus without measuring performance, unless it is a statutory obligation.

360 Degree Appraisal Feedback Method

360 Degree Appraisal Feedback Method plead for feedback from seniors (including the top management), co-workers and subordinates, has been more dependent as the best of all available source for bringing together performance feedback. If you are performing the Leadership roles, you can realize the fact that it is inevitable to impress all persons in the management cadre. Every person in the team is responsible for giving relevant, positive and constructive feedback. Such systems also help in identifying leaders for higher level positions in the organization. Senior managers could use this feed back for self development.

A Better Evaluation Practice of Employees

The building up of performance evaluation system mainly creates a healthy link between the company's goal and individual performance of the employees. Every employee should build themselves how to do the self rating and to develop the well defined reporting relationship. Evaluation should be done in every periodical achievements of the employee, tracked over the year. For higher objectivity, besides the immediate boss, each employee should be screened by the next higher level (often called a Reviewer). Cross - functional feedback, if obtained by the immediate boss from another manager (for whom this employee's work is also important), will add to the fairness of the system. Relative ratings of all subordinates reporting to the same manager are another tool for fairness of evaluation. Normalization of evaluation is yet another dimension of improving fairness.

Knowledge Sharing

Knowledge management portal in every organization helps to share and gain lot of knowledge which is posted in database either by organization or the employee of the company. After completing each session of development program conducted by organization, knowledge should be shared with others could be made mandatory. New ideas should be applied at the work place are important to be posted on these knowledge sharing platforms. Maintain a knowledge base required deep thinking like how to store and make use of it.

Highlight performance

Organization has to take steps to highlight and make the best performance to be visible either through company intranet or through display boards. It makes others to encourage and put in the best, and also creates a competitive approach within the organization.

Open house discussions and feedback mechanism

No wonder that ideas rule the world. Great organizations recognize, cultivate and carry out great dreams. Major source of ideas come from Employees of the organization. The only

thing that can stop great ideas flooding your organization is the lack of an appropriate mechanism to capture ideas. Open house discussions, employee-management meets, suggestion boxes and ideas capture tools such as Critical Incidents diaries are the building blocks that can help the Managers to identify & develop talent.

Reward Ceremonies

Simply empower talent does not work; you need to couple it with ceremonies where recognition is broadcast. Looking at the Cheque is often less significant than listening to the thunderous applause by colleagues in a public forum

Delight Employees with the Unexpected

Every organization should delight your employees with sudden things that may come in the form of an incentive, or a bravo certificate. Motivation or reward is not only to the best performers but also a few others who are in need of motivation to build their potential.

Suggestions

1. Strengthen Data Governance:

- Implement robust data governance frameworks to ensure the ethical collection, storage, and use of employee data. This will help in building trust and ensuring compliance with legal and ethical standards.

2. Promote Cross-Functional Collaboration:

- Encourage collaboration between HR, IT, and data science teams to effectively design and implement AI-driven engagement solutions. This interdisciplinary approach can lead to more innovative and practical applications of AI.

3. Focus on Change Management:

- Develop comprehensive change management strategies to facilitate the transition to AI-driven engagement practices. This includes clear communication, training, and support to help employees adapt to new technologies.

Recommendations

1. Shortlisting Candidates:

- Use AI to not only automate the shortlisting process but also to enhance diversity and inclusion. AI algorithms can be designed to minimize unconscious bias by focusing on skills and competencies rather than demographic factors.

2. Sorting Complaints Based on Priority:

- Implement AI tools that can analyze the sentiment and urgency of complaints in real-time. This can help HR teams prioritize issues that impact employee morale and productivity, allowing for timely interventions.

3. Prioritizing Work-from-Home Permissions:

- Develop AI models that take into account not just performance and role requirements but also employee well-being and personal circumstances. This holistic approach can help organizations support flexible work arrangements that enhance employee satisfaction and work-life balance.

4. Enhance Employee Experience:

- Use AI to create personalized employee journeys, from onboarding to career development. AI can help identify learning and development needs, match employees with mentors, and provide personalized career path recommendations.

5. Leverage Predictive Analytics:

- Utilize AI-driven predictive analytics to anticipate employee needs and potential challenges. This proactive approach can help organizations address issues before they escalate, improving overall engagement and retention.

6. Foster a Culture of Innovation:

- Encourage a culture that embraces innovation and experimentation with AI. Provide platforms for employees to share ideas and feedback on AI applications, fostering a sense of ownership and involvement in the transformation process.

By thoughtfully integrating AI into engagement strategies, organizations can not only enhance employee satisfaction and productivity but also foster a culture of continuous improvement and innovation. The insights and recommendations outlined in this study provide a comprehensive framework for leveraging AI to create a more dynamic and inclusive work environment.