



# Web based Recruitment Simplification System for Global Capability Centers (GCCs) using MERN Stack with NLP-Based Resume Screening and Automated Workflow Management

Mohammed Ashik M<sup>1</sup>, Parthiban M<sup>2</sup>, Prajaivishnu G<sup>3</sup>, Yuvaraj V<sup>4</sup>, Mrs.G.Meena M.E.

UG Scholars, Department of Computer Science and Engineering, R P Sarathy Institute of Technology, Salem,  
Tamil Nadu, India

Assistant Professor, Department of Computer Science and Engineering, R P Sarathy Institute of Technology, Salem,  
Tamil Nadu, India

**Publication History:** Received: 25.02.2026; Revised: 20.03.2026; Accepted: 25.03.2026; Published: 28.03.2026.

**ABSTRACT:** The recruitment is the main function of HR department and the recruitment process is the first step towards making the competitive quality and the recruitment strategic advantage for the association. A quantitative method used to analyze this study, the researchers prepared questionnaire and distributed at Telecommunication Companies in Erbil-Kurdistan. The objective of this research paper is to determine the recruitment and selection procedures in organizations, and finding out the methodologies that are involved in the process. Moreover, finding out how being qualified and having certificates affects the recruitment process, and how different criteria such as gender, race, and culture effect on it as well. The survey was conducted at Telecom Companies. Employees filled the survey. Data was collected and Statistical Package for Social Sciences (SPSS) version 23 was used as the statistical analysis tool while descriptive statistics were calculated and used in the interpretation of findings. The population of this study is approximately 220 employees, The researchers distributed 80 questionnaires, but 69 questionnaires received from participants, however only 60 questionnaires were properly filled out by the participants, accordingly my sample size was initially a total of (60) surveys, and %100 was turned back which means 60 surveys. Data for the research paper was collected through a questionnaire paper distributed to employees working at Telecom Companies. The researchers found that there is no difference in candidates' race and gender in internal promotion at Telecommunication Companies in Erbil-Kurdistan, therefore the researchers answered the first research question, and the second research question which stated that Within our organization, for second question the researchers found that the majority of participants believed that selection methods used (application forms, assessment centers, psychometric tests, interviews, CV data, references, group interviews) are important.

**KEYWORDS:** MERN Stack, NLP Resume Screening, Recruitment Automation, Workflow Management, Global Capability Centers, Candidate Matching, Hiring System

## I. INTRODUCTION

The recruitment process includes examining the necessities of work, drawing Recruitment is the process of discovering or selecting and hiring or best qualified candidate from inside or outside of employee to that occupation, screening and selecting organization for a job opportunity.

candidates, contracting, and coordinating the new employee to the association. Also, HR department responsible to choose the right person or best qualified candidate for the post for organization needs (Abdullah & Othman, 2019). The recruitment is the main function of HR department and the recruitment process is the first step towards making the competitive quality and the recruitment strategic advantage for the association. Recruitment is the process of discovering and catching qualified or appropriate applicant to fill the vacant position (Anwar & Abdullah, 2021). Recruitment process includes a systematic procedure from sourcing the candidates to orchestrating and leading the interviews and requires numerous resources and time. The methods and procedures used to acquire an understanding about jobs are called job analysis. There are mainly two sources of recruitment: internal and external (Gardi et al. 2020). Selection is a process of evaluating and interviewing candidates for a particular job and selecting the right person for the right position. Selection is a process of hiring suitable people for job who can successfully perform the



job (Prabhu et al. 2020). When there is vacant position in an organization Human resource Management take a responsibility for finding and selecting the right person for this vacant position. Right man for right job is the main goal of selection (Anwar & Shukur, 2015). Selecting process includes a progression of steps to be taken after for picking the suitable employee for the empty position. This procedure begins after recruitment and partitions the competitors in two sections the individuals who will be offered work and those won't be. There is a need of all around composed determination process in light of the fact that at exactly that point right kind of applicant can be chosen and unsatisfactory candidates are rejected (Sultan et al. 2020). The selection process changes from association to association and even from department to another department inside of the same association. Like in a few associations therapeutic examination is done after definite choice while in other it might be done before conclusive choice (Abdullah & Othman, 2015). However, every association plans the choice procedure according to its need. The selection process involves many steps such as preliminary reception of application, screening, interviewing, test, medical test, references and final decision of hiring. Organizational performance can be measured using indicators in Efficiency, Effectiveness, Relevance to Stakeholders and Financial Viability (Gardi, 2021). Human Resources has created strategic worth in organizations we know and how the impact of HR on organizational performance has been measured using the four kinds of indicators. However, Strategic Worth is situational not absolute, and therefore must be judged within each organization (Ismael et al. 2021). To create strategic worth, HR must understand what performance is important to the organization, be current in HR expertise on the important issues and lead the organization to better performance (Gardi, 2021). In order to articulate its impact on organizational performance, so that the company knows what has been achieved as a result of HR, it must measure its impact and be a presence at the strategic level. Performance is a major multidimensional construct aimed to achieve results and has a strong link to strategic goals of an organization (Anwar & Abd Zebari, 2015).

## Research Question

- Do Telecommunication companies consider gender and race differences for internal promotions?
- Do Telecommunication companies use selection methods such as (application forms, assessment centers, psychometric tests, interviews, CV data, references, group interviews)?

## Research objective

- To distinguish considers gender and race differences of Telecommunication companies.
- To find out selection methods that Telecommunication companies are using.

## II. LITERATURE REVIEW

### Recruitment

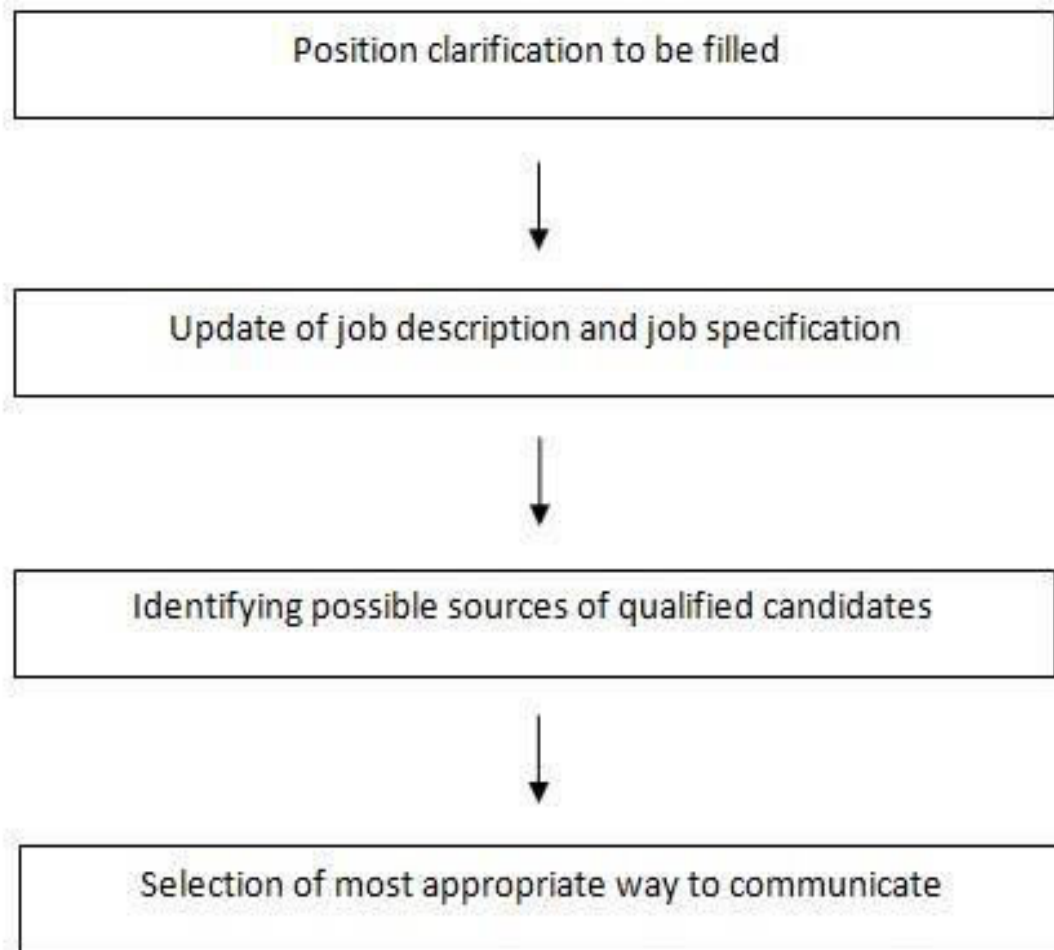
Recruitment is the process of discovering or selecting and hiring or best qualified candidate from inside or the process by which organizations locate and attract individuals to fill job vacancies (Anwar & Surarchith, 2015). Recruitment is defined as a set of activities for an organization to catch the attention of job applicants that have the abilities needed to help the organization achieve its objectives and goals (Othman et al. 2019). The recruitment process includes examining the necessities of work, drawing employee to that occupation, screening and selecting contracting, and the

### Process of recruitment

The recruitment is the main function of HR department and the recruitment process is the first step towards making the competitive quality and the recruitment strategic advantage for the association. Recruitment process includes a The selection process changes from association to association and even from department to another department inside of the same association. Like in a few associations therapeutic examination is done after definite choice while in other it might be done before conclusive choice (Abdullah & Othman, 2015). However, every association plans the choice procedure according to its need. The selection process involves many steps such as preliminary reception of application, screening, interviewing, test, medical test, references and final decision of hiring. Organizational performance can be measured using indicators in Efficiency, Effectiveness, Relevance to Stakeholders and Financial Viability (Gardi, 2021). Human Resources has created strategic worth in organizations we know and how the impact of HR on organizational performance has been measured using the four kinds of indicators. However, Strategic Worth is situational not absolute, and therefore must be judged within each organization (Ismael et al. 2021). To create strategic worth, HR must understand what performance is important to the organization, be current in HR expertise on the important issues and lead the organization to better performance (Gardi, 2021).



In order to articulate its impact on organizational performance, so that the company knows what has been achieved as a result of HR, it must measure its impact and be a presence at the strategic level. Performance is a major multidimensional construct aimed to achieve results and has a strong link to strategic goals of an organization (Anwar & Abd Zebari, 2015).



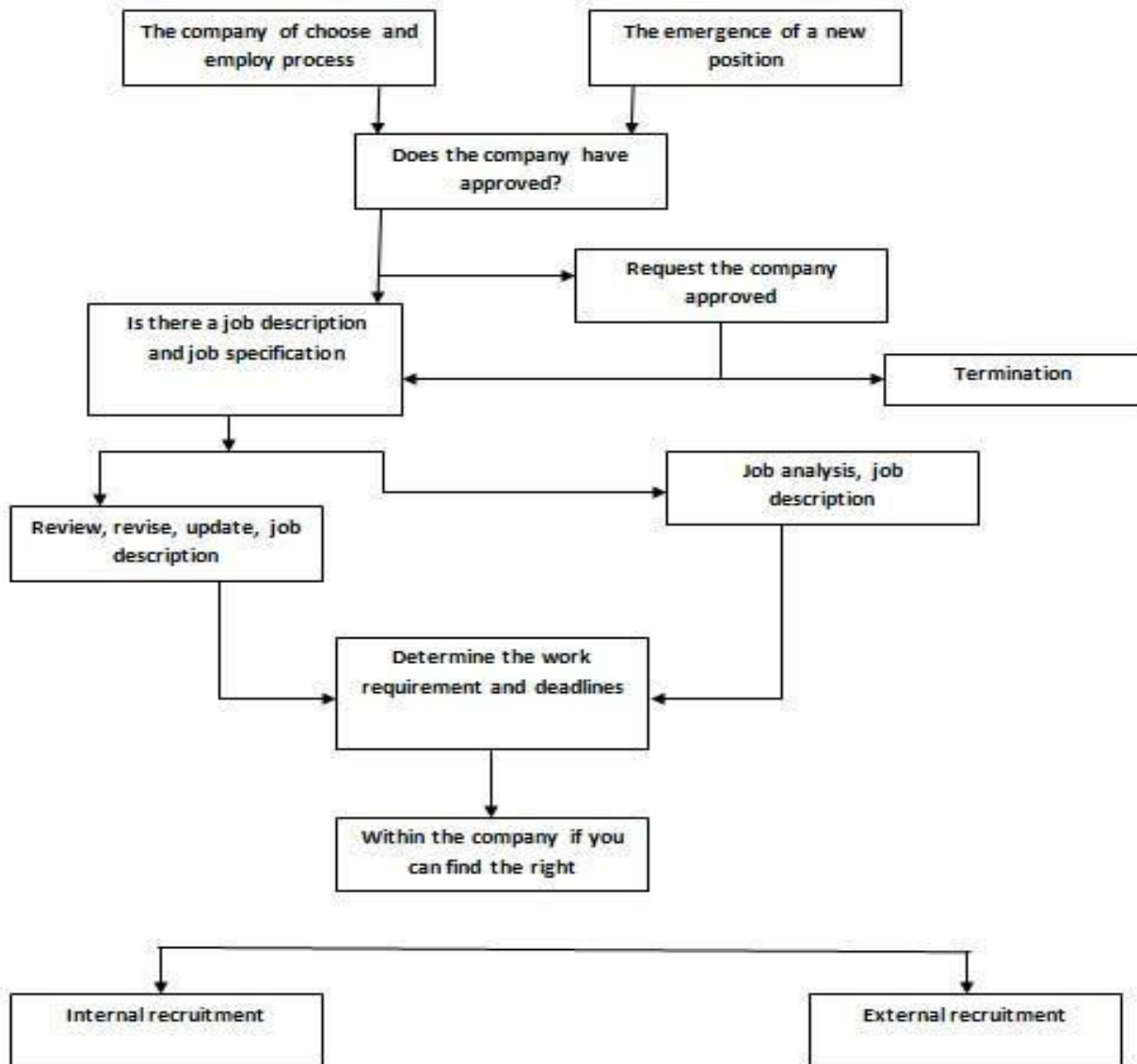


Fig.2: Recruitment Process

**Methods of recruitment**

According to Anwar & Qadir, (2017), in the recruitment process there are a several types of methods but which are narrow to two main methods which are:

**Internal recruitment**

Internal recruitment is cost efficient, to support employee satisfaction and moral. Spend some time in the recruitment or Encourage current employees before looking outside the company for talent (Abdullah & Rahman, 2015). Nothing is more disappointing the employee, who works hard to get promoted, to see someone new take over the position Deserved or desired (Demir et al. 2020). Promote within the organization involves less training and transition (Abdullah, 2019). Human resource planning to Internal recruiting because it is faster and easier to find needed employees when you planning to fill a vacant position on time and managers improve their decision making in the recruitment process using other choices (Ali & Anwar, 2021). On internal recruitment some methods would use which is (job bidding and job posting and Employee references) (Ali, 2021).



## **Job bidding and job posting:**

The process for notifying the company employees that a job opening exists is called a Job posting.

authorize individuals to apply for a posted job, who presume that they possess the required qualifications, is done through Job bidding technique.

## **Employee references:**

May give you phenomenal prospects for the current suggested employees

Current employees will waver to set down average capacity candidates.

## **External recruitment**

Competent competitors are included to apply for job position. This Source is generally used to make recruitment for passage level occupations and skilled employments (Khan & Abdullah, 2019). Or recruiting candidates from outsourcing agencies etc. are called as external sources of recruitment (Anwar & Abdullah, 2021). External recruitment in some case it is useful and beneficially like bringing new candidates it brings new skills and new idea for your company but in some case, it has disadvantage like less experiencing because new employee will take too much time to learn rules and points on their job (Anwar & Abdullah, 2021). Some of company recommend external recruiting because external employee they don't think too much like an exist employee thing (Prabhu et al. 2020), some time when you want recruit internal recruitment this employee when you want hiring the position to another position he/she think she promoted and he/she want promote in salary too because when you hire employee your company should rise or promote your salary too (Ali, 2020), but for the new employee in external recruiting new employee did not think too much on a salary he/she don't need too much when exist employee want. According to Ganeshkumar et al. (2019), there are 3 point on external recruiting is (labor market conditions, legal considerations and corporate image) (Andavar et al. 2020).

## **Formal**

According to Abdullah & Afshar, (2019), in order to maintain organizational ability and sustain competitive advantage this will depend on the ability of the organization to attract and retain individuals with skills needed to give the organization a competitive edge'(Abdullah & Rahman, 2015). The use of formal recruitment techniques could be considered the better option here as, opposed to informal recruitment, the organization can attract a wider variety of candidates giving them a considerably greater talent pool to choose from (Ali et al. 2021). 'Formal recruitment methods have a great impact in attracting a larger pool of applicants (Abdullah, 2018).

## **Informal**

One of the commonly approach to recruiting is the use of informal methods such as the word-of-mouth and speculative candidates. According to Saleh et al. (2021), 'Informal recruitment methods are highly associated with smaller organizations and provide potential applicants with accurate and detailed information about the organization and the job'(Faraj et al. 2021). According to Abdullah & Othman, (2016), research strongly recommends that informal recruitment methods achieve a better selection of well qualified candidates than formal methods (Abdullah & Othman, 2021).

## **Selection**

It is a process of evaluating and interviewing candidates for a particular job and selecting the right person for the right position (Abdullah & Abdul Rahman, 2015). Once the organization has decided on the appropriate means through which they will recruit potential candidates for the job their next task is to identify the most appropriate and effective method to use in order to select the right person. When there is vacant position in an organization (Anwar & Abdullah, 2021). Human resource Management take a responsibility for finding and selecting the right person for this vacant position (Anwar & Shukur, 2015).

## **Process of Selection**

Selecting process includes a progression of steps to be taken after for picking the suitable employee for the empty position (Anwar & Abd Zebari, 2015). This procedure begins after recruitment and partitions the competitors in two sections the individuals who will be offered work and those won't be (Anwar & Surarchith, 2015). There is a need of all around composed determination process in light of the fact that at exactly that point right kind of applicant can be chosen and unsatisfactory candidates are rejected. The selection process changes from association to association and even from department to another department inside of the same association (Anwar, 2017). Like in a few associations therapeutic examination is done after definite choice while in other it might be done before conclusive choice (Ali, 2016). However, every association plans the choice procedure according to its need. According to Anwar, (2016), some organizations may give importance to various tests, while others may emphasize interviews and reference checks.



Similarly, a single brief selection interview might be enough for applicants for lower-level positions, while applicants for managerial jobs might be interviewed by a number of experts (Ali, 2014). Also, according to Abdulla et al. (2017), the recruiting process through some steps which detailed in figure (3).

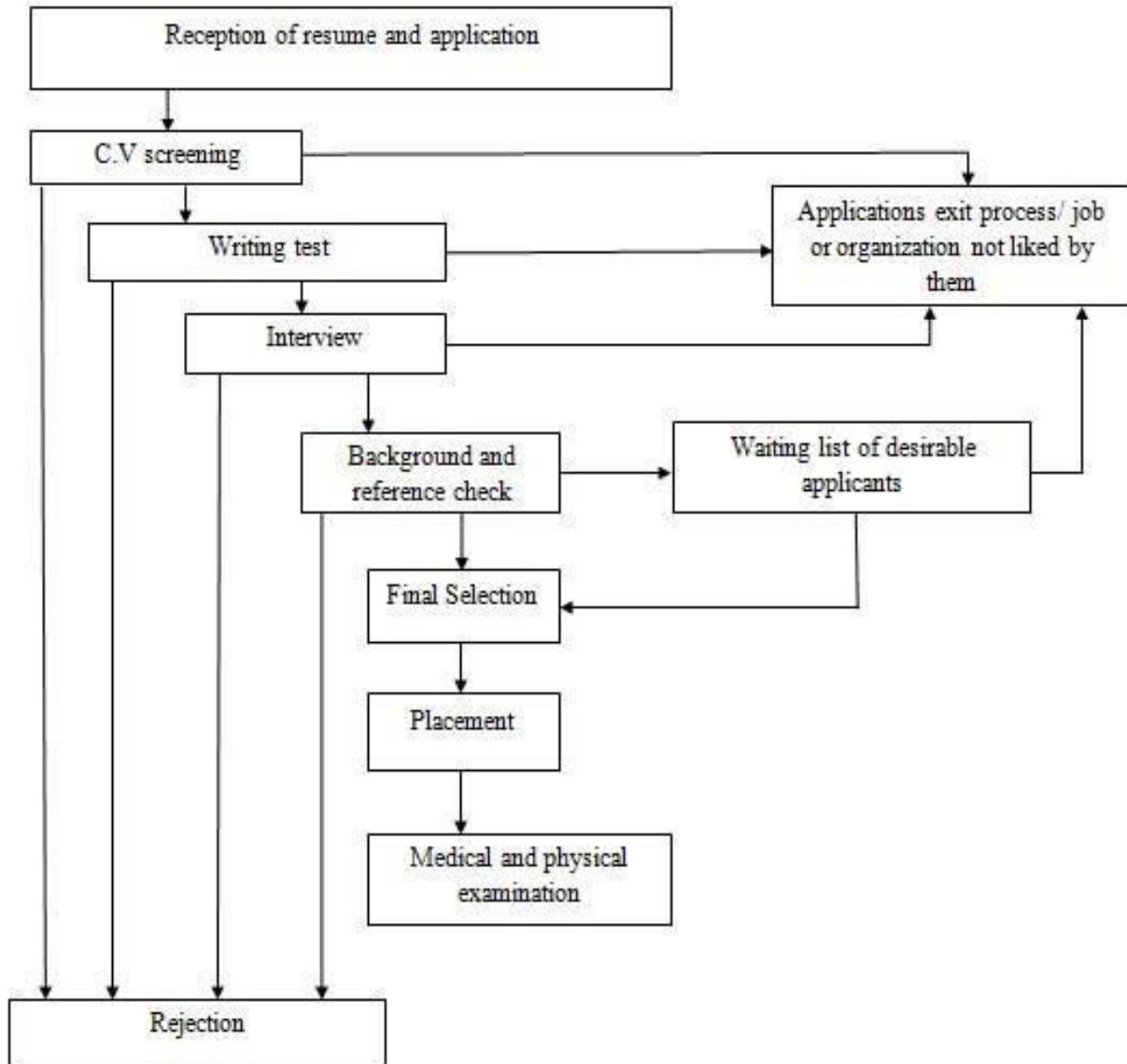


Fig.3: Selection Process

### III. METHODOLOGY

#### Research design

A quantitative method used to analyze this study, the researchers prepared questionnaire and distributed at Telecommunication companies in Erbil-Kurdistan. The questionnaire consisted of two separate parts, the first parts of the questionnaire focus on demographic analysis and the second part consisted of questions related to the recruitment and training.

#### Research objective

The objective of this research paper is to determine the recruitment and selection procedures in organizations, and finding out the methodologies that are involved in the process. Moreover, finding out how being qualified and having



certificates affects the recruitment process, and how different criteria such as gender, race, and culture effect on it as well.

### Sampling design

The survey was conducted at Telecom Companies. Employees filled the survey. Data was collected and Statistical Package for Social Sciences (SPSS) version 23 was used as the statistical analysis tool while descriptive statistics were calculated and used in the interpretation of findings. The population of this study is approximately 220 employees, I distributed 80 questionnaires, but 69 questionnaires received from participants, however only 60 questionnaires were properly filled out by the participants, accordingly my sample size was initially a total of (60) surveys, and %100 was turned back which means 60 surveys.

### Data collection

Data for the research paper was collected through a questionnaire paper distributed to employees working at Telecom Company. Telecom Company was a good place to start this in because it has many employees with different backgrounds and qualifications. 60 survey papers were distributed to employees that were mostly in HR department, the survey consisted of four parts; Biography, Recruitment, Selection, and Organization Performance.

## IV. FINDING AND DISCUSSION

The following tables are taken by analyzing data by using SPSS version 23.0 and using descriptive and frequency analyze. As we can see in the first table most of employees are in the young age, near 62 Percentage is between 18-29 years. It is a good point because young employees have more performance and ability to learn in a modern way. Sometimes every company needs old employees because old employees have a lot of experiences and skills to aim the company or organization. As for participants' gender, it was found that 71.7 percent is male and only 28.3 percent is female. This data explains us what? Show us most employees are male and male can work and find work easily than female. In some case culture is responsible in this situation because don't let female work easily. As for participants' level of education, it was found that 63.3 percent have a bachelor certificate. In this case it explains us most people here after college search and find a job exactly after bachelor certificate maybe they want to feel responsible to their family.

Table 1- Demographic Analysis

No	Items	Scales	Frequency	Percent
1	Age	18-29	37	61.7
		30-39	20	33.3
		40-49	3	5.0
2	Gender	Male	43	71.7
		Female	17	28.3
3	High School	4	6.7	High School
	Diploma	5	8.3	Diploma
	Bachelor	38	63.3	Bachelor
	Master	12	20.0	Master
	Other	1	1.7	Other



## Descriptive Analysis

The researchers found, as for the first question, if we focus on experience in current position 60 percent is between 1-5 years. It explains us changing position and hiring position in a good situation no one remaining in same place from 15 years they will hire the position, of course hiring positions need more skills and experiences. As for the second question, 36.7 percent agree to Potential employees must fit into our organizational culture to secure employment and also 26.7 agree with this. Only 10 percent disagree and strongly disagree with this point. As for the third question, 31 participants equal 51.6 feel natural to use unstructured interviews to determine the suitability of candidates for a vacant position. 15 participants Both for disagree and strongly disagree and 14 agree and strongly agree with this. As for the fourth question, 21 participants feel natural when recruiting candidates for a position, the policy of affirmative action is followed but more than 48 participants strongly agree and agree with this question and only 10 participants strongly disagree and disagree with this. As for the fifth question, 19 participants equal 23.3 percent agree with recruiting potential employees from colleges, technicians and universities and 14 participants strongly agree with this, and 13 participants feel natural with this, 10 participants disagree with this and only 4 participants strongly disagree with this. As for the sixth question, 21 participants strongly disagree with considering gender and race for internal promotions and 20 participants disagree with this both equal 68.3 percent disagree and strongly disagree with this, only 3 participants strongly agree with this and 8 participants agree with this, both equal to 18.8 percent agree and strongly disagree with considering gender and race for internal promotions, also 8 participants feel natural with this. As for the seventh question, 24 participants feel natural with structuring interviews to determine the suitability of candidates for a vacant position, but both with agree and strongly agree take 43.3 percent in this question and only 10 participant equal 16.7 percent disagree and strongly disagree with this. As for the eighth question, 22 participants agree with receiving large numbers of experienced applicants in response to a job advert in the media and 10 participants strongly agree with this both equal to 53.4 percent. Also, 15 percent feel natural with this and both with disagree and strongly disagree equal 21.7 percent. As for the ninth question, 23 participants agree with receive large numbers of qualified applicants in response to a job advert in the media. 14 participants strongly agree, also 16 participants feeling natural with this and only 7

participants equal to 11.6 percent disagree and strongly disagree with it. As for the tenth question, 26 participants feel natural with the recruitment of candidates for advertised positions is conducted in conjunction with recruitment agencies. And 13 participants agree with it, only 1 participant strongly disagrees with it and 10 participants strongly agree with it. As for the eleventh question, 23 participants strongly agree with Within our organization, selection methods used (application forms, assessment

centers, psychometric tests, interviews, CV data, references, group interviews) are important, and 22 participants agree with this. Also 11 participants feeling natural, both with disagree and strongly disagree only 4 participants with this equal to 6.7 percent. As for the twelfth question, 16 participants agree within our organization, recommendation and/or personal acquaintance with the potential candidate are important. And 15 participants disagree with it, 11 participants feel natural with this. The only difference is between strongly agree with strongly disagree, 13 participants answer strongly agree and only 5 participants answer strongly disagree. As for the thirteenth question, 22 participants agree within our organization, selection criteria based on informal qualifications are important. 18 participants feel natural, 11 participants disagree with this. And only 6 participants strongly agree and 3 participants strongly disagree.

As for the fourteenth question, 21 participants strongly agree within our organization, internal/external recruitment is important. 18 participants agree with it, also 14 participants answer natural and only 7 participants disagree and strongly disagree with it. As for the fifteenth question, 24 participants agree with Employee Performance in our organization has been improved over the past 12 months in relation to Efficiency, and 22 participants feeling natural with it. Only 7 participants disagree with it and there is no participants answers strongly disagree. As for the sixteenth question, 31 participants agree with their performances is better than that of my colleagues with similar qualifications. And 14 participants feel natural with it and 9 participants strongly agree with it, only 6 participants disagree and strongly disagree with this its equal to 11 percent. As for the seventeenth question, 30 participants agree with satisfying with my performance because it is mostly good. And 10 participants strongly agree with it and 16 participants feel natural with it. Only 4 participants disagree and strongly disagree with it, it is equal to 6.7 percent. As for the eighteenth question, 27 participants agree with the performance of my organization is better than that of other organizations. 19 participants feeling natural, and we have only one participant strongly disagree with it and 8 participants strongly agree with it. As for the nineteenth question, 23 participants feeling natural with their performance is better than that of engineers with similar qualifications in other organization. And 21 participants agree with it and 9 participants strongly agree with it, also we have only 2 participants with strongly disagree and 5 participants disagree with it.



Table 2-Descriptive Statistics

Scales	N	Min	Max	Mean	Std. Deviation
Q1-We use unstructured interviews to determine the suitability of candidates for a vacant position	60	1	5	2.98	.892
Q2-When recruiting candidates for a position, the policy of affirmative action is followed	60	1	5	2.50	1.033
Q3-We recruit potential employees from colleges, technicians and universities	60	1	5	2.52	1.214
Q4-We consider gender and race for internal promotions	60	1	5	3.80	1.205
Q5-We use structured interviews to determine the suitability of candidates for a vacant position (applicable to formal interviews)	60	1	5	2.52	1.066
Q6-We receive large numbers of experienced applicants in response to a job advert in the media	60	1	5	2.57	1.110
Q7-We receive large numbers of qualified applicants in response to a job advert in the media	60	1	5	2.30	1.030
Q8-The recruitment of candidates for advertised positions is conducted in conjunction with recruitment agencies	60	1	5	2.65	1.005
Q9-Within our organization, selection methods used (application forms, assessment centers, psychometric tests, interviews, CV data, references, group interviews) are important.	60	1	5	1.98	1.049
Q10-Within our organization, recommendation and/or personal acquaintance with the potential candidate are important.	60	1	5	2.72	1.290
Q11-Within our organization, selection criteria based on informal qualifications are important	60	1	5	2.72	1.043
Q12-Within our organization, internal/external recruitment is important.	60	1	5	2.17	1.137
Q13-Employee Performance in our organization has been improved over the past 12 months in relation to Efficiency	60	1	4	2.48	.854
Q14-My performance is better than that of my colleagues with similar qualifications.	60	1	5	2.32	.930
Q15-I am satisfied with my performance because it is mostly good.	60	1	5	2.25	.856
Q16-The performance of my organization is better than that of other organizations	60	1	5	2.40	.887
Q17-My performance is better than that of engineers with similar qualifications in other organization.	60	1	5	2.50	.966



## V. CONCLUSION

This is the conclusion chapter. Here the research questions are answered and the limitations and contributions of the study are analyzed with a gap for further research on the subject. In terms of first research question which stated that considering gender and race for internal promotion, the researchers found that there is no difference in candidates' race and gender in internal promotion at Telecommunication Company in Erbil-Kurdistan, therefore the researchers answered the first research question, and the second research question which stated that Within our organization, selection methods used (application forms, assessment centers, psychometric tests, interviews, CV data, references, group interviews) are important, the researchers found that the majority of participants believed that Telecommunication, selection methods used (application forms, assessment centers, psychometric tests, interviews, CV data, references, group interviews) are important.

## REFERENCES

1. Abdullah, N. N., & Othman, M. B. (2019). Effects of Intellectual Capital on the Performance of Malaysian Food and Beverage Small and Medium-Sized Enterprises. *International Journal of Civil Engineering and Technology (IJCIET)*, 10(2), 135-143.
2. Anwar, G., & Abdullah, N. N. (2021). Inspiring future entrepreneurs: The effect of experiential learning on the entrepreneurial intention at higher education. *International Journal of English Literature and Social Sciences*, 6.
3. Gardi, B., Hamawandy, N. M., Vian Sulaiman Hama Saeed,
4. R. M. A., Sulaiman, A. A., Mahmood, S. A., & Al-Kake, F. A. (2020). The Effect of Capital Competence on the Profitability of Development and Investment Banks in Turkey. *Solid State Technology*, 63(6), 12571-12583.
5. C.Nagarajan and M.Madheswaran - 'Stability Analysis of Series Parallel Resonant Converter with Fuzzy Logic Controller Using State Space Techniques'- Taylor & Francis, *Electric Power Components and Systems*, Vol.39 (8), pp.780-793, May 2011. DOI: 10.1080/15325008.2010.541746
6. C.Nagarajan and M.Madheswaran - 'Experimental verification and stability state space analysis of CLL-T Series Parallel Resonant Converter' - *Journal of Electrical Engineering*, Vol.63 (6), pp.365-372, Dec.2012. DOI: 10.2478/v10187-012-0054-2
7. C.Nagarajan and M.Madheswaran - 'Performance Analysis of LCL-T Resonant Converter with Fuzzy/PID Using State Space Analysis'- Springer, *Electrical Engineering*, Vol.93 (3), pp.167-178, September 2011. DOI 10.1007/s00202-011-0203-9
8. S.Tamilselvi, R.Prakash, C.Nagarajan, "Solar System Integrated Smart Grid Utilizing Hybrid Coot-Genetic Algorithm Optimized ANN Controller" *Iranian Journal Of Science And Technology-Transactions Of Electrical Engineering*, DOI10.1007/s40998-025-00917-z,2025
9. S.Tamilselvi, R.Prakash, C.Nagarajan, " Adaptive sliding mode control of multilevel grid-connected inverters using reinforcement learning for enhanced LVRT performance" *Electric Power Systems Research* 253 (2026) 112428, doi.org/10.1016/j.epsr.2025.112428
10. S.Thirunavukkarasu, C. Nagarajan, 2024, "Performance Investigation on OCF and SCF study in BLDC machine using FTANN Controller," *Journal of Electrical Engineering And Technology*, Volume 20, pages 2675–2688, (2025), doi.org/10.1007/s42835-024-02126-w
11. C. Nagarajan, M.Madheswaran and D.Ramasubramanian- 'Development of DSP based Robust Control Method for General Resonant Converter Topologies using Transfer Function Model'- *Acta Electrotechnica et Informatica Journal* , Vol.13 (2), pp.18-31, April-June.2013, DOI: 10.2478/aei-2013-0025.
12. C.Nagarajan and M.Madheswaran - 'DSP Based Fuzzy Controller for Series Parallel Resonant converter'- Springer, *Frontiers of Electrical and Electronic Engineering*, Vol. 7(4), pp. 438-446, Dec.12. DOI 10.1007/s11460-012-0212-0.
13. C.Nagarajan and M.Madheswaran - 'Experimental Study and steady state stability analysis of CLL-T Series Parallel Resonant Converter with Fuzzy controller using State Space Analysis'- *Iranian Journal of Electrical & Electronic Engineering*, Vol.8 (3), pp.259-267, September 2012.
14. C.Nagarajan and M.Madheswaran, "Analysis and Simulation of LCL Series Resonant Full Bridge Converter Using PWM Technique with Load Independent Operation" has been presented in ICTES'08, a IEEE / IET International Conference organized by M.G.R.University, Chennai.Vol.no.1, pp.190-195, Dec.2007
15. Suganthi Mullainathan, Ramesh Natarajan, "An SPSS and CNN modelling based quality assessment using ceramic materials and membrane filtration techniques", *Revista Materia (Rio J.)* Vol. 30, 2025, DOI: <https://doi.org/10.1590/1517-7076-RMAT-2024-0721>



16. M Suganthi, N Ramesh, "Treatment of water using natural zeolite as membrane filter", *Journal of Environmental Protection and Ecology*, Volume 23, Issue 2, pp: 520-530,2022
17. Prabhu, M., Nambirajan, T., & Abdullah, N. N. (2020). Operating competitive priorities of manufacturing firms: An analytical study. *Journal of Industrial Engineering and Management*, 13(1), 38-55 .
18. Anwar, G., & Shukur, I. (2015). The Impact of Training and Development on Job Satisfaction: A Case Study of Private Banks in Erbil. *International Journal of Social Sciences & Educational Studies*, 2(1), 65.
19. Sultan, K., Ahmed, R. R., Jafar, R., Murtaza, M. M., & Gardi, B. Corporate financial policy and its impact on sustainable capital structure: empirical evidence from textile firms of pakistan.
20. Abdullah, N. N., & Othman, M. (2015). Disaster Management: Empirical Study of 2009 Jeddah Flood. Abdullah, NN & Othman, M.(2015). Disaster Management: Empirical Study of, 1083-1087.
21. Gardi, B. (2021). Investigating the effects of Financial Accounting Reports on Managerial Decision Making in Small and Medium-sized Enterprises. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(10), 21342142.
22. Anwar, G., & Shukur, I. (2015). Job satisfaction and employee turnover intention: A case study of private hospital in Erbil. *International Journal of Social Sciences & Educational Studies*, 2(1), 73.
23. Ismael, N. B., Sorguli, S., Aziz, H. M., Sabir, B. Y., Hamza, P. A., Gardi, B., & Al-Kake, F. R. A. (2021). The Impact of COVID-19 on Small and Medium-Sized Enterprises in Iraq.
24. *Annals of the Romanian Society for Cell Biology*, 24962505.
25. Anwar, G., & Shukur, I. (2015). the impact of recruitment and selection on job satisfaction: Evidence from private school in Erbil. *International Journal of Social Sciences & Educational Studies*, 1(3), 4-13
26. Gardi, B. (2021). The effects of computerized accounting system on auditing process: a case study from northern Iraq. Available at SSRN 3838327.
27. Anwar, G., & Abd Zebari, B. (2015). The Relationship between Employee Engagement and Corporate Social Responsibility: A Case Study of Car Dealership in Erbil, Kurdistan. *International Journal of Social Sciences & Educational Studies*, 2(2), 45.
28. Anwar, G., & Surarchith, N. K. (2015). Factors Affecting Shoppers' Behavior in Erbil, Kurdistan-Iraq. *International Journal of Social Sciences & Educational Studies*, 1(4), 10.
29. Othman, B. J., Al-Kake, F., Diah, M. L. M., Othman, B., & Hasan, N. M. (2019). This study examines the antecedents and the effects of knowledge management and information technology in the manufacturing industry. *International Journal of Psychosocial Rehabilitation*, 23(02).
30. Khan, S. & Abdullah, N. N. (2019). The effect of ATM service quality on customer's satisfaction and loyalty: an empirical analysis. *RJOAS*, 5(89): DOI 10.18551/rjoas.2019-05.28
31. Anwar, G., & Shukur, I. (2015). The Impact of Service Quality Dimensions on Students' Satisfaction. *International Journal of Social Sciences & Educational Studies*, 76.
32. Anand, L., Maurya, M., Seetha, J., Nagaraju, D., Ravuri, A., & Vidhya, R. G. (2023, July). An intelligent approach to segment the liver cancer using Machine Learning Method. In 2023 4th international conference on electronics and sustainable communication systems (ICESC) (pp. 1488-1493). IEEE.
33. Rajendran, S., Sundarapandi, A. M. S., Krishnamurthy, A., & Thanarajan, T. (2022). An intelligent face recognition technology for iot-based smart city application using condition-cnn with foraging learning pso model. *International Journal of Pattern Recognition and Artificial Intelligence*, 36(14), 2256018.
34. Murugeswari, B., & Sujatha, R. (2014). Preservation of Privacy for Multiparty Computation System with Homomorphic Encryption. *International Journal of Emerging Technology and Advanced Engineering*, 4(3), 530-535.
35. Sugumar, R. (2025). Unified AI Framework for Predictive Data Engineering and Real Time Prescription and Billing Systems. *International Journal of Advanced Engineering Science and Information Technology (IJAESIT)*, 8(5), 17261.
36. Samrat, B., Thomas, P. K., Kumar, S., Benila, A., Bhardwaj, R., & Vigenesh, M. (2024, December). Industrial informatics in optimizing software-defined vehicles for logistics. In 2024 IEEE 2nd International Conference on Innovations in High Speed Communication and Signal Processing (IHCS) (pp. 1-9). IEEE.
37. Soundappan, S. J. (2024). AI-driven customer intelligence in enterprise lakehouse systems Sentiment Mining Governance-Aware Analytics and Real-Time Data Synchronization. *International Journal of Advanced Engineering Science and Information Technology*.
38. Rajasekar, M. (2024). AI-Powered Cyber-Secure Federated Learning on AWS for Next-Generation Digital Banking Analytics. *International Journal of Advanced Research in Computer Science & Technology (IJARCST)*, 7(3).
39. Deivendran, P., Babu, P. S., Malathi, G., Anbazhagan, K., & Kumar, R. S. (2023). Emotion Recognition for Challenged People Facial Appearance in Social using Neural Network. arXiv preprint arXiv:2305.06842.



40. Sugumar, R., & Murugeswari, B. (2016). An Efficient MChord based Authentication for Vehicular Ad-Hoc Networks.
41. Pandey, V. K., Mishra, S., Rengarajan, A., Savita, & Roomi, M. M. (2024, March). Enhancing Weather Forecasting with Machine Learning Techniques. In International Conference on Renewable Power (pp. 147-156). Singapore: Springer Nature Singapore.
42. Mathew, A., & Alex, H. (2025). Federated Learning for Secure Genomic Research: Privacy-Preserving AI Solutions for Precision Medicine. *Science and Technology: Developments and Applications* Vol. 9, 36-43.
43. Selvi, G. V., Anbarasan, A. B., Murthy, B. A., & Prabavathy, S. (2023). An Application Oriented Integrated Unequal Clustering Algorithm for Wireless Sensor Network. In *Underwater Vehicle Control and Communication Systems Based on Machine Learning Techniques* (pp. 140-154). CRC Press.
44. Soundappan, S. J. (2025). Next Generation AI Enabled Holistic Cognitive Platform for Secure Cloud Network Intelligence Enterprise Systems and Digital Trust Optimization. *International Journal of Computer Technology and Electronics Communication*, 8(5), 11534-11542.
45. Rajasekar, M. (2024). Real-Time Predictive DevOps Intelligence for Risk-Aware Digital Business Processes in Cloud and SAP Ecosystems. *International Journal of Advanced Research in Computer Science & Technology (IJARCST)*, 7(4), 10713-10718.
46. Jagadeesh, S., & Sugumar, R. (2017). A comparative study on artificial bee colony with modified ABC algorithm. *European Journal of Applied Sciences*, 9(5), 243-248.
47. Murugeswari, B., Sarukesi, K., & Jayakumar, C. (2010, March). An efficient method for knowledge hiding through database extension. In *2010 International Conference on Recent Trends in Information, Telecommunication and Computing* (pp. 342-344). IEEE.
48. Reddy, K. V. V. K., & Vimal, V. R. (2024, July). A novel approach on improved segmentation and classification of remote sensing images using AlexNet compared over linear discriminant analysis with improved accuracy. In *2024 Second International Conference on Advances in Information Technology (ICAIT)* (Vol. 1, pp. 1-6). IEEE.
49. Gowthami, D., & Vigenesh, M. (2024). Distributed and Lightweight Intrusion Detection for IoT: A Lightweight Pyramidal U-Net With Tri-Level Dual Inception-Based Framework. In *The Convergence of Self-Sustaining Systems With AI and IoT* (pp. 154-173). IGI Global Scientific Publishing.
50. Anand, P. V., & Anand, L. (2023, December). An Enhanced Breast Cancer Diagnosis using RESNET50. In *2023 International Conference on Innovative Computing, Intelligent Communication and Smart Electrical Systems (ICES)* (pp. 1-5). IEEE.
51. Mathew, A. (2022). Leveraging Big Data Analytics to Power AI and ML (Machine Learning) Automation. *Educational Research (IJMCER)*, 4(5), 131-134.
52. Dhinakaran, D. (2022). Joe Prathap P. M, Selvaraj D, Arul Kumar D and Murugeswari B, " Mining Privacy-Preserving Association Rules based on Parallel Processing in Cloud Computing,". *International Journal of Engineering Trends and Technology*, 70(3), 284-294.
53. Poornima, G., & Anand, L. (2024, April). Effective Machine Learning Methods for the Detection of Pulmonary Carcinoma. In *2024 Ninth International Conference on Science Technology Engineering and Mathematics (ICONSTEM)* (pp. 1-7). IEEE.
54. Rengarajan, A., Jayakumar, C., & Sugumar, R. (2012). Optimization Of Recent Attacks Using Internet Protocol. *National Journal of System and Information Technology*, 5(1), 8.
55. Mathew, A., & Romasco, L. (2024). Forensic Investigation of Artificial Intelligence Systems. *Research Updates in Mathematics and Computer Science* Vol. 4, 154-164.
56. Vekariya, V., Kumar, S., & Rengarajan, A. (2024). A distinctive and smart agricultural knowledge-based framework using ontology. In *Sustainability in Digital Transformation Era: Driving Innovative & Growth* (pp. 207-213). CRC Press.
57. Soundappan, S. J. (2020). Big data analytics in healthcare: Applications for pandemic forecasting. *International Journal of Advanced Research in Computer Science & Technology*, 3.
58. Sugumar, R. (2024). AI-Augmented Quality Engineering for Performance Optimization and Test Orchestration in Distributed Systems. *International Journal of Science, Research and Technology*, 7(5), 12835-12846.
59. Soundappan, S. J., & Sugumar, R. (2016). Optimal knowledge extraction technique based on hybridisation of improved artificial bee colony algorithm and cuckoo search algorithm. *International Journal of Business Intelligence and Data Mining*, 11(4), 338-356.
60. Mathew, A. (2025). Ahead of the breach: Predictive threat intelligence in aviation inspired by Scattered Spider attacks. *Multidisciplinary International Journal of Research and Development (MIJRD)*, 4(6), 54-58.
61. Soundappan, S. J. (2021). DataOps: Orchestrating Reliable ML Data Pipelines. *International Journal of Research and Applied Innovations*, 4(4), 5533-5537.



62. Garg, V. K., Soundappan, S. J., & Kaur, E. M. (2020). Enhancement in intrusion detection system for WLAN using genetic algorithms. *South Asian Research Journal of Engineering and Technology*, 2(6), 62–64.
63. Anand, L., Tyagi, R., & Mehta, V. (2024, January). Food recognition using deep learning for recipe and restaurant recommendation. In *Proceedings of Eighth International Conference on Information System Design and Intelligent Applications* (pp. 269-279). Singapore: Springer Nature Singapore.
64. Kumar, A., & Anand, L. (2025). A Novel EEG-Based Deep Learning Framework for Enhancing Communication in Locked-In Syndrome Using P300 Speller and Attention Mechanisms. *KSII Transactions on Internet and Information Systems (TIIS)*, 19(11), 3841-3855.
65. Soundappan, S. J. (2022). AI-Based Fault Detection and Isolation for Reliability in Modern Power Systems. *International Journal of Research Publications in Engineering, Technology and Management (IRPETM)*, 5(4), 7106-7110.
66. Chandra, S., Rengarajan, A., Sahoo, G. S., & Sharma<sup>4</sup>, S. (2024, October). Identifying Neuronal Damage and Plasticity by Analyzing Changes in Diffusion Tensor. In *Proceedings of the 5th International Conference on Data Science, Machine Learning and Applications; Volume 2: ICDSMLA 2023, 15–16 December, Hyderabad, India* (Vol. 2, p. 433). Springer Nature.