

# A Study on E-Recruitment and Selection

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## Abstract

The study examines the impact of e-recruitment platforms on Bchemix Chemicals hiring process. It evaluates their efficiency, cost savings, and candidate quality. Data was collected through surveys and statistical tools like the Chi-square test. Results show that e-recruitment platforms significantly improve recruitment by reducing time-to-hire and enhancing user experience. However, technical issues and slow response times present challenges that need further optimization. The study concludes that addressing these limitations is crucial for maximizing e-recruitment's potential in streamlining hiring at Bchemix.

**Keywords:** E-recruitment, Hiring Cost, Candidate quality, Digital hiring tools, Automated screening, Recruitment challenges, Bchemix.

## 1. Introduction

In this digital age, e-recruitment is a big deal for companies across many industries. As the global job market gets competitive, companies are making the hiring process smoother by using online platforms, AI-powered hiring tech, and auto-screening tools. According to modern research, over and with remote and hybrid work becoming more common, companies are using digital hiring tools more. This allows them to attract people wherever they are. This e-recruitment trend is more relevant to industries where businesses need to adapt to changing market demands and compete for specialized skills such as chemical manufacturing. Bchemix is one of the players in the chemical industry and faces the same challenges. With traditional recruitment methods that used to work for the industry, Bchemix is looking into e-recruitment platforms to streamline its recruitment process. So, the purpose of this study is to find out how e-recruitment can help Bchemix improve the quality of their new hires, reduce time to hire, and overall recruitment efficiency.

Bchemix Chemicals is engaged in the production of chemical compounds such as formalin decolourants, polymer dewatering agents based on mineral oil, silicon decolourants, and polyelectrolytes. Some consumers of these products are oil drilling industries, food products, fabric, wood pulp and paper. Defoamer, also known as an anti-foaming agent, is a substance added to or employed in industrial process liquids, which facilitates or inhibits the formation of foam. Because of foam problems, defoamers are mandatory in a number of fields. Furthermore, stable foam is non-productive inside a plant, as well as endangering product loss and possibly peril within a plant. Foam also creates multiple issues. Density variations that make it challenging to produce reliable package weights.

- Equipment that has been directly damaged, necessitating repairs and downtime.
- Interference that reduces product quality by interfering with specific coating or separation procedures.

Variety of chemical substances used in Bchemix enterprise to create a customized product are Mineral oil defoamer, Silicon-based totally defoamer, and Polyelectrolyte.

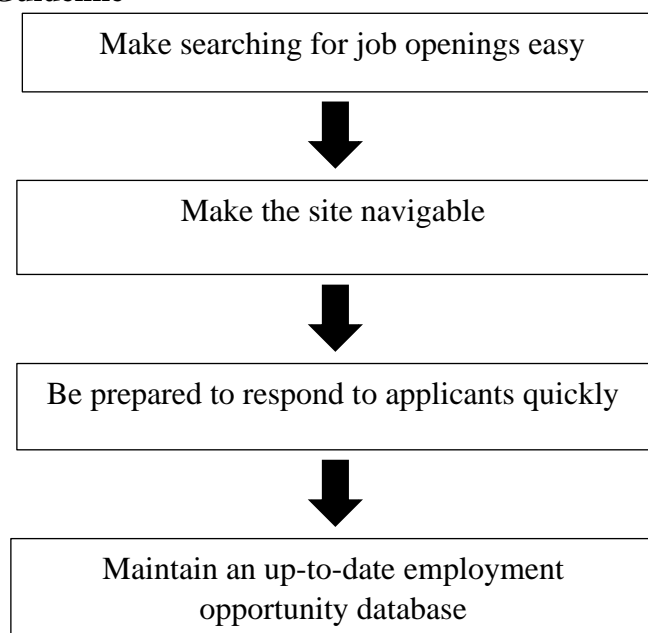
- **Mineral Oil-Based Defoamer:** Defoamers are chemical substances entirely derived from mineral oil that are employed in a variety of industrial operations to control and reduce foam generation. These defoamers preserve the system's effectiveness and the integrity of the product by upsetting the foam bubbles and causing them to burst
- **Silicon-Based Decolourant:** In various industrial processes, specialised chemical compounds known as silicon-based complete decolourants are used to diminish or remove colour, particularly in the textile dyeing and wastewater treatment industries. These decolourants, which are made of silicon compounds, react with the coloured impurities in the liquid, disrupting or forcing them out of the solution
- **Polyelectrolyte:** Electrically charged repeating units are present in water-soluble polymers known as polyelectrolytes. They find great utility in a wide range of industrial and environmental settings. As flocculants, coagulants, and dispersion agents, these charged polymers are widely used, particularly in the treatment of wastewater and water

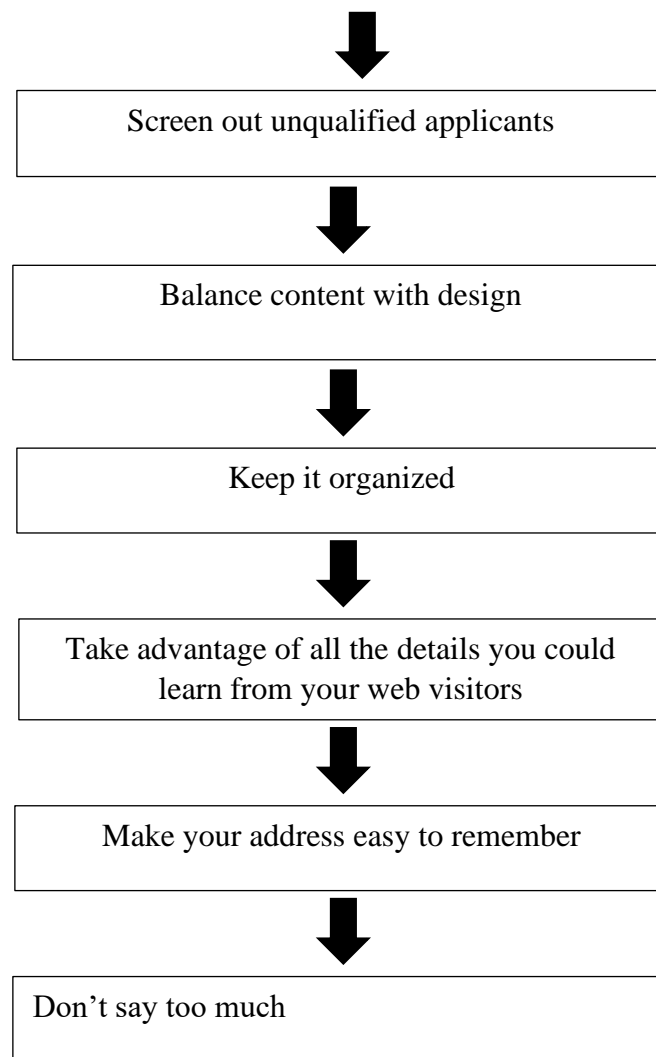
### 1.1 Industry profile

In the chemical sector, Bchemix is a leading company that is renowned for its innovation and wide range of products. The company's primary activity is manufacturing and distributing specialty chemicals, that could be modified to satisfy the demands of several sectors, such as industrial manufacturing, food and beverage, pharmaceutical, and agricultural.

- Particularity Chemicals
- Agriculture
- Sustainability and Innovation
- Strong worldwide Presence

### 1.2 Online Recruitment Guideline





## 2. Literature Review

Long-time HR specialists undoubtedly remember receiving stacks of resumes receiving and, stacks of resumes sent either by search firms, in response to newspaper ads, or through one of the other more traditional recruitment resources.

The process of receiving and reviewing resumes and employment applications has changed dramatically over the past decade. Increasingly, employers are using the Internet to recruit, either by developing an online presence of their own or by linking up with web-based job search services. Applicants, too, are preparing and transmitting many more resumes electronically, thereby relieving recruiters from being inundated with thousands of paper resumes.

Knowing the number of resumes and applications transmitted electronically, the Equal Opportunity Commission (EEOC) has proposed guidelines to define when a person who applies for a job over the Internet is considered an “applicant”.

Types of Online Recruitment

- Electronic resumes
- Scannable/ Text based resumes
- Chronological resume formats

## 2.1 Internet Job Boards

In addition to advertising jobs for your business enterprise's career website, you have the option of posting work opportunities on a variety of online job boards. Here are some of the most commonly used types of job boards.

- General job boards
- Industry specific boards
- Professional associations
- Resume blasters
- Recruitment sourcing
- Government sites
- Diversity sites
- Targeted applicants
- Streamline service
- School job boards
- Outplacement services

## 2.2 Related works

- **HELLA SYLVA AND STEFAN T. MOL (2009)** The research document details the online application process for job seekers, focusing on demographics, system assessment, efficiency, user-friendliness, and information provision to gauge applicant satisfaction.
- **ANNA B. HOLM (2010)** The paper describes the impact of E-HRM on organizations, stressing the significance of its strategic role, job advertising, designs, and the techniques at how business associates understand this technology tool effectively.
- **Elfi Furtmuellera, Celeste Wilderoma, And Mary Tate (2011)** The paper assesses the benefits of digital resume in E-recruiting, focusing on its cost, speed, and convenience. Further, it points out issues and difficulties concerning homogenizing materials, keeping folders up to date and unfriendly comments of current feature offered by image analysis.
- **PAVITRA DHAMIJA (2012)** The paper explains the growth and the rise of E-recruitment, focusing on efficiency, economy, and speed. It highlights how the decision for choosing an employee now depends upon the Human Resource Information Systems, which will be high in demand from line managers.
- **EVANTHIA FALIAGKA, GIANNIS TZIMAS (2012)** The paper delves and will seek to implement an E-recruitment system, an automated procedure to gather information from career aspirants on their blog and LinkedIn postings, with the goal of facilitating the recruitment process reduces the task of the human recruiter.
- **ZULQARNAIN MALIK1 DR. RAZA ULLAH (2013)** The study examines E-recruitment's role in the telecom sector, revealing a positive correlation in hiring, particularly in attracting skilled labor. It recommends integrating E-recruitment into HR planning for improved staff retention.
- **JACEK WOZNIAK (2014)** The paper highlights the significance of employer branding in E-recruitment, categorizing techniques into four tiers, and analysing the rise in methods in Poland and the USA, emphasizing the need for efficient pre-selection tools.
- **NEHA SHARMA (2014)** The study explores social media usage and E-recruiting in hiring practices, highlighting the advantages of various E-recruitment strategies. It explores the latest technological

advancements in the employment sector and changes in hiring practices due to E-recruitment tools.

- **JORGE MARTINEZ-GIL (2014)** The study emphasizes the importance of information management strategies in E-recruitment, focusing on semantic processing for improved job matching. It highlights obstacles in hiring and discusses the role of HR Knowledge Bases, semantic matching, and Top-K queries.
- **ARUN SHERKAR (2015)** The study paper discusses the advantages of employing E-resources for hiring in five-star hotels, such as enhanced employer branding, reduced hiring delays, and cost effectiveness. It draws attention to the effects on job searchers and recruiting companies as well as the function of the internet in drawing in and keeping candidates

**OBJECTIVES OF STUDY**

**FINDINGS**

To examine user experience and satisfaction levels on these E-recruitment platforms among job searchers and recruiters.	Good user experience, with varying levels of satisfaction among age groups.
To evaluate how E-recruitment platforms affect the recruiting process's speed and efficiency.	The necessity of combining traditional and electronic recruitment techniques.
To evaluate the cost-effectiveness of E-recruitment platforms to more conventional means of hiring.	An increase in hiring efficiency reduces cost of savings.
To determine the obstacles and restrictions related to the use and installation of E-recruitment platforms in businesses.	Technical problems, slow reaction times, and prejudice are obstacles.

**2.3 Research gap**

An important topic to explore for e-recruitment and selection is the analysis of the efficacy and equity of the machine learning and artificial intelligence (AI) algorithms used in these procedures. Although not much is known regarding the way these technologies impact applicant experience, bias, and fairness, the technological improvements and operational efficiency offered by E-recruitment platforms have been researched. Regarding the possible unexpected spread of biases or unfair treatment of candidates by AI-driven systems, there is a major study gap. It is advisable to conduct additional study in order to gain a comprehensive understanding of the enduring impacts of electronic recruitment on employee contentment and retention, along with its implications for equal opportunities and diversity. By addressing these differences, more equal and efficient e-recruitment methods may be developed

**2.4 Research hypothesis and framework**

Although huge data suggest that E-recruitment platforms enhance hiring results, organizations nevertheless invest a lot of money in them. This study aims to examine how effective it is of different E-recruitment techniques concerning expenses, hiring time, and candidate Caliber. The overall effectiveness of e-recruitment platforms to achieve recruitment objectives continues to be unexplored despite their widespread use. But a detailed examination of the direct impacts of these platforms on hiring efficacy, position fill-time, and hiring quality has not yet been carried out.

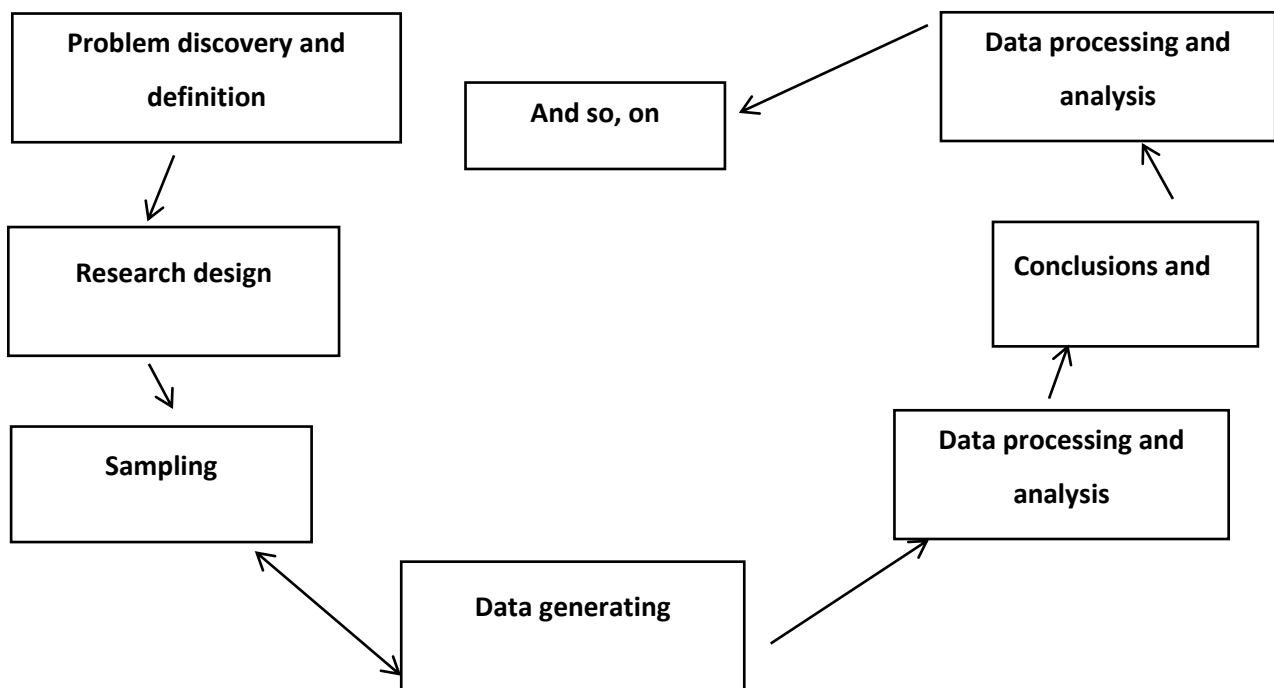
- A hypothesis in research is a speculation or a guess.

- Simply put, it is a prediction regarding the possible outcomes of a study.
- One way of solving a research problem is by identifying possible solutions or explanations and then gathering information to see if they are correct.
- We can therefore define hypotheses as tentative explanations of factual information.

After that, you gather data to support or reject a hypothesis

**H0 (Null Hypothesis):** There is no significant association between age group and Satisfaction with the E-recruitment process.

**H1(Alternate Hypothesis):** There is a significant association between age group and Satisfaction with the E-recruitment process



**Fig 2.1: Research hypothesis framework**

### 3. Research methodology

Research is a systematic inquiry or examination into a particular subject or issue that results in new or better knowledge. The methodical and objective process of gathering data that helps make business decision-making is known as business research. Data is gathered for research purposes to characterize, forecast, regulate, or explain topics of interest, such as business, environmental, public, and other social issues. It is the highly systematic and methodical collection of all relevant information and proof regarding challenges that helps in decision-making.

#### 3.1 Variables

##### Method of collecting data:

1. Primary data
2. Secondary data

##### Primary Data

A researcher gathers primary information for a specific investigation or investigates himself. These var-

ious statistical analyses are generated through surveys conducted by individuals or academic institutions.

### Sources of primary data

- Direct Personal Interview
- Questionnaire
- Observation

### Secondary Data

when a researcher includes data that has already been collected by someone else. As secondary data, they are known. This information is used mainly by the company that is obtain the data, after which it is used as secondary data by somebody else.

### Sources of secondary data

- Company Brochures
- Journals
- Reports
- Textbooks
- World wide web

## 3.2 Data collection

- **Descriptive Research (Aware of the problem)**
  - Describes characteristics of a population or phenomenon.
  - An awareness of the nature of the issue
- **Research Approach:** Survey method
- **Research instrument:** Descriptive research
- **Respondents:** The students, and employees of the organization
- **Sample size:** sample of 107 people
- **Sampling Technique:** Random sampling
- **Statistical Tools:** SPSS (statistical package for social science), graphs, tables, Likert scale analysis, and basic percentage analysis.
- **Data Analysis Techniques:** The information is analyzed using a simple method. The statistics tool is the Chi-Square Test.
- **Percentage of Respondents:** No of respondents/ Total no of respondents\*100

## 3.3 Tools for Data Analysis

### Chi-Square Test

The chi-square test is one of the least complex and broadly utilized tools in statistical work it is defined as

$$X^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Where:

**O<sub>i</sub>:** Observed value

**E<sub>i</sub>:** Expected value

		No of respondents	Respondents (%)
Age	18-24	49	45.8%
	25-34	17	15.9%
	35-44	31	29%
	45-54	10	9.3%
	Total	107	100.0
Level of satisfaction	Very Satisfied	24	22.4%
	Satisfied	46	43%
	Neutral	25	23.4%
	Dissatisfied	10	9.3%
	Very Dissatisfied	2	1.9%
	Total	107	100.0

**Table 1 Analysis of Demographic and satisfaction level**

#### 4. Results and discussions

**Does the Satisfaction level with the E -recruitment process depend on the age group?**

**Table 4.1 observed value**

Age Group	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Total
18-24	10	21	15	02	01	<b>49</b>
25-34	04	07	04	02	0	<b>17</b>
35-44	06	14	04	06	01	<b>31</b>
45-54	04	04	02	0	0	<b>10</b>
<b>Total</b>	<b>24</b>	<b>46</b>	<b>25</b>	<b>10</b>	<b>2</b>	<b>107</b>

**To calculate the Expected Value, the formula is**

$$E_{ij} = \frac{\text{Row total (i)} \times \text{Column total (j)}}{\text{Total}}$$

**Table 4.2 Expected value**

Age Group	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Total
18-24	10.98	21.06	11.44	4.58	0.92	<b>48.98</b>
25-34	3.81	7.31	3.97	1.59	0.32	<b>17</b>
35-44	6.96	13.33	7.24	2.90	0.58	<b>31.01</b>
45-54	2.25	4.31	2.34	0.94	0.19	<b>10.03</b>
<b>Total</b>	<b>24</b>	<b>46</b>	<b>25</b>	<b>10</b>	<b>2</b>	<b>107.02</b>

**Now, To Calculate the Chi-Square test**

$$X^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$



**Table 4.3 Chi square test**

Age Group	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Total
18-24	0.087	0.002	1.112	1.454	0.007	<b>2.662</b>
25-34	0.009	0.013	0.000	0.074	0.320	<b>0.416</b>
35-44	0.133	0.034	1.451	3.290	0.308	<b>5.216</b>
45-54	1.372	0.022	0.049	0.940	0.190	<b>2.573</b>
<b>Total</b>	<b>1.601</b>	<b>0.071</b>	<b>2.612</b>	<b>5.758</b>	<b>0.825</b>	<b>10.867</b>

**Degrees of Freedom**

$$df = (\text{number of rows} - 1) \times (\text{number of columns} - 1)$$

$$= 4 - 1 \times 5 - 1$$

$$= 12$$

**Critical value Conclusion**

By the Chi-square distribution table, the critical value of  $df = 12$  at Significance level  $(\alpha) = 0.05$  is approximately **21.026**.

Since the calculated Chi-square test is less than the critical value

$$10.867 < 21.026 \text{ (rejected)}$$

Therefore, the **null hypothesis is rejected**.

Hence, there is no significant association between age group and Satisfaction level with the E-recruitment process.

**5. Conclusion**

The project has highlighted the increasing importance of digital recruitment and selection platforms in today's employment environment. Several advantages are provided by these platforms, such as increased hiring efficiency, lower employment expenses, and greater reach. However, the research also underscores specific obstacles, like the possibility of digital discrimination issues and the danger of disqualifying eligible candidates because of dependence on automated screening instruments.

The conclusion of this project work demonstrates how E-recruitment has altered current recruiting procedures. By these study results, E-recruitment platforms greatly increase the effectiveness and range of the hiring process by providing more applicants and cutting down the time and expense involved with traditional hiring techniques. The utilization of online tools has led to more efficient and transparent selection processes, which are according to the modern organization's requirement for precision and quickness in talent acquisition.

E-recruitment platforms have altered hiring processes, but firms need to integrate them with traditional approaches to achieve the best results. Regular evaluation and modification are necessary to meet the changing demands of employers and job searchers. Future studies prefer to look into new E-recruitment technologies to enhance the hiring procedure.

**5.1 Limitation and Suggestions**

- Despite all the possible efforts to make the analysis more comprehensive and scientific a study present kind is bound to have certain limitations. The study is an empirical work presented in descriptive work.

- Here are the limitations and the barriers that I have undergone during the preparation of the project:
- The project has less time available because of the time required to distribute and collect surveys.
- The study does not claim 100% accuracy since the data used is primary.
- The study's conclusion is predicated on the assumption that the respondents provided unbiased data.
- As per the findings of the study, labour market trends, organisational policies, and economic situations are among the external variables that may impact the effectiveness of E - recruitment platforms.
- Although there are several new recruitment trends, such as outsourcing, poaching, and recruitment on campuses, companies must attempt to add new steps to the current recruitment process if they do not want to alter the standard practices.
- The organization should prioritize employees who bring the best potential candidates.
- Recruit individuals knowledgeable about new technologies to replace existing employees who are unable to undergo training.
- Interview should be done in a short period to save resources for the organization.
- The division of employees into groups must be stopped as it will create a great misunderstanding among employees which will tend to lower their output.

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