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Selection of a best online job portal in the United States using analytical hierarchy process

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**ABSTRACT**

Job seekers often need focus on one job portal among many alternatives to increase efficiency. This paper develops a framework to select the best online job portal from the perspective of job seekers with analytical hierarchy process. This paper is mainly for the job seekers in the domain of science, engineering, health and management although the framework could be adapted to other types of domains. The criteria are quality and performance, efficient search engine, relevant job description, privacy, ease of applying and appropriate features. This framework includes Web-HIPRE to give an additional weightage on the result of this research.

**KEYWORDS:** Online job portal, Analytical hierarchy process, E-recruiting, Job search methods

**INTRODUCTION**

Every individual at some or the other point of their lifetime search for jobs. As a saying goes, 'good day is pay day', it is important to have a job, but not just a job, the one which we desire and love to do. As Aristotle said, pleasure in the job puts perfection in the work, so to find a job of one's choice job seekers use different methods. The active and effective methods in present era are online portals, school job and alumni centers, registered unions, staffing centers and professional/friends' referrals. This paper believes the efficacy of what job seekers seek is fulfilled by online job portals. A survey has been conducted to justify the opinion, based on which the research continued. To understand why and from when people started and are using online job portals it is important to understand how internet is changing and connects everything in recent times. Communication, banking, networking, ticketing, entertainment, and job searching, for example, can be accessed either from a handy smartphone or a personal computer from your home. All you need is internet.

Job seekers from more than a decade started using online means to get a job. Online portals, exclusively for job search was one of the most prominent business in early 2000's. The importance of online medium in job search can be explained as the companies for example Yahoo! invested a lot of millions to acquire one of the leading job portals in 2000 to sustain their website ranking and market share. Online recruitments have been taking many folds to evolve and become a prominent method or medium to select employees and employers of their choice. They are continuously improving themselves to meet the recruiters' and job seekers' preferences. Most job

seekers make accounts in different online job portals and have difficulty in concentrating on the most effective one. Timely applications are very much important while applying for a job. You may lose a job opportunity of your interest with delay in applying or by being inactive on the most effective portal. Online job portals are being used by majority of recruiters because of its advantages such as timeliness of recruitment information, decrease of recruitment cost, expansion of space of recruitment and efficiency improvement of personnel management (Li and Chen 2010).

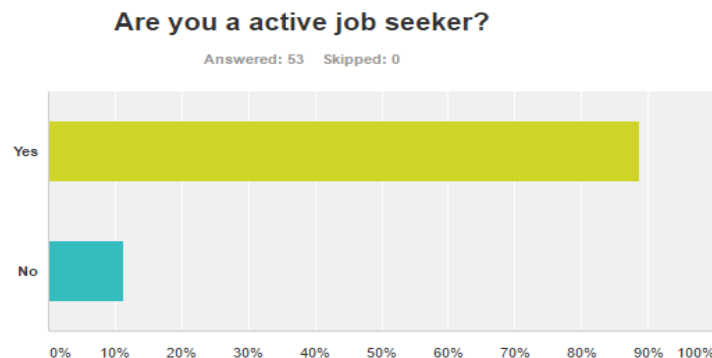
*“The Internet has drastically changed the face of recruitment. Employers must now actively market themselves by instituting a well-implemented e-recruitment program to find better quality candidates and improve hiring decisions, all in less time and at a lower cost.” (Smith and Rupp 2004)*

It’s been a decade since Smith and Rupp emphasized on e-recruiting and it’s still valid to date and significance only increased. With changing employers’ preferences and up-gradation, job seekers should also update to the efficient online portals. In this paper, we ought to understand the stakeholders’ preferences in an online job portal and, based on the priorities, select the most effective and best online job portal.

Online job portals are striving to meet the preferences and priorities of recruiters but gave a very little insight in what needs and preferences job seekers have. Job seekers having a little knowledge on the efficiency of job portals are wasting their valuable time on comparatively less efficient online job portals. Evaluating the priorities and selecting a best online portal using a multi-criteria decision-making tool will help job seekers rank a portal based on their significances.

Every year millions of students are graduating from thousands of American schools and Universities. According to center of education statistics, during the 2016–17 school year, colleges and universities are expected to award 1,018,000 associate's degrees; 1.9 million bachelor's degrees; 798,000 master's degrees; and 181,000 doctor's degrees. Most of these students will be available in job market and will be actively seeking a job. According to a survey, 51% employed are actively seeking a job or open to a new job. This is increasing a wide pool of suitable applicants for recruiters. As part of this research, series of interviews and an online survey were conducted. The results of online survey also suggest the percentage of active job seekers is considerably high. This makes the paper relevant to present era.

Figure 1: Survey results for Q1



The paper deals with multiple criteria decision making (MCDM), and analytical hierarchy process (AHP) is chosen as a methodology for this research, as it is acclaimed for its’

qualitative analysis. AHP requires a finite number of alternatives for its qualitative analysis and is widely used in various fields from more than two decades. This methodology is appropriate for this research as it involves pair-wise comparison of criteria and alternatives. The application of pair-wise comparisons was introduced in 1860 and was developed in 1927 by Fechner and Thurstone respectively. Saaty structured the process by breaking down the problem into a hierarchy of sub-problems. This made the evaluation easier and more reliable.

The general breakdown of AHP, which is also applied to this paper is,

1. Structure the decision hierarchy tree (the goal of the decision, the objectives, set of the alternatives).
2. Construct a set of pairwise comparison matrices.
3. Use the priorities obtained from the comparisons to weigh the priorities

A scale of preferences was defined to weigh the importance of criteria against each other. The process proposed by Saaty normalizes the pair-wise comparisons to calculate the priority vectors, hence ranking the criteria relatively. The same is repeated for alternatives with respect to each criterion. The decision makers may or may not make consistent decisions, so in order to understand the level of consistency, Saaty defined the consistency ratio (CR) and Saaty suggested a random consistency index table which helps us through the process. We initially calculate consistency index, and divide it with Saaty's RI values, so that the CR is a normalized. Saaty asserts a matrix is a consistent one only if  $CR < 0.1$ . Consistency of AHP promises statistical reliability. This made the analytic hierarchy process (AHP) proposed by Saaty, a very popular approach to multi-criteria decision-making (MCDM) promising reliability and consistency.

Table 1: Scale of Preference

Relative Importance	Value
Equal importance/quality	1
Somewhat more important/better	3
Definitely more important/better	5
Much more important/better	7
Very much more important/better	9

Table 2: Saaty's Random Index Table

N	2	3	4	5	6	7	8	9	10
RI	0	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.51

A series of face to face and phone interviews and an online survey collected the opinion of decision makers which were used as inputs for the AHP performed. To make the process more reliable and as a process of justification, an online version of decision making tool is used to find the results and compare them to results obtained.

Web-HIPRE is the first globally available decision analytical software and this paper includes it as part of the framework. This will shed an additional light on the AHP performed. Web-HIPRE (Hierarchical Preference analysis on the World Wide Web) is a Java based application for multi-criteria decision making. In Web-HIPRE, our problem is structured hierarchically to form a value tree. In this value tree, each criteria is divided to its sub-criteria, which are weighted by their importance to decision maker. The total

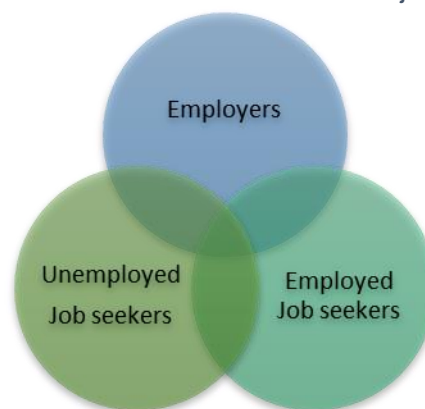
weights of the alternatives are calculated from these local weights. Mouse-driven commands build this value tree in Web-HIPRE, based on the local values given Web HIPRE calculates the result and provides it in form of bar chart and value data. We can also perform sensitivity analysis in Web-HIPRE. The only limitation in using Web-HIPRE is that we cannot save the models we performed to the local directory and the models will be available in public directory of Web-HIPRE.

## LITERATURE REVIEW

Online job search is the most effective method in the present era, so this paper aims to focus on job search in particular with one method, i.e., online job search. But to understand why people are preferring online over other methods, it is important to know what the other methods are. The other methods or procedures that people use for job search are employment recruitment agencies, job fairs, advertisements in employment related newspapers and magazines, advertisements in radio and television, professional referral, alumni network, school employment center, certified union and professional registers (Kuhn, et al. 2000; Mankar, Et al. 2016). Even though these methods are termed traditional in many papers, a few of those methods became extinct, while the others are still in use.

The best online portal but be able to fulfill the needs and meet the demands of its stakeholders. So, It is important to understand who the actual stakeholders of an online job portal are. As Mankar, et al. explained, job seekers (both employed and unemployed) and employers are the stakeholders, and job portals should be emphasizing on that fact. Online portals should be appealing, user friendly and have a larger database which will make them more impactful and effective.

Figure 2 Stakeholders of an online job portal



History of online recruiting in U.S. is dating back to the late 20<sup>th</sup> century. As stated by Peter Kuhn, in the year 1998, 15 percent of unemployed and 7 percent of employed active American job seekers used internet to find jobs. This can be considered as the first mention of online recruiting on paper. It is also stated that people with internet job search had better access and there was no difference of age and gender among people who acquired the jobs. Kuhn asserts that online job search is realistic and clearly with its *search capabilities and low cost communications has predicted it's potentiality to change the methods of job search.*

In the present competitive and modern era, employers are trying to find effective and high quality employees with a low recruiting expenditure. Online job portals are equally important for employers and job seekers, as job seekers have a wide range of opportunities to access within minimum time and employers have a wide pool of qualified and eligible candidates. While considering online job portals, many reputed companies are using their official websites for recruiting (Liu, C-c.,2011). With higher quality content, these official websites are likely attracting more applications on their webpage. According to Chung-Chu.L, job search websites must be focusing on convenient, economic value, relational and knowledge value, respectively. The websites should provide *real time information for job seekers*.

We can observe an increase in the percentage of job seekers who use internet to find a job from 26% in 2000 to 54% in 2015, which clearly shows a majority of Americans have selected the online way as the best way. The proportion of Americans who research jobs online has doubled in the last 10 years (Smith, 2015). Major issues found to impede the effectiveness of on-line recruiting are the degree and speed of follow-up on-line applications, lack of specific and relevant job descriptions on a company's Web site, concerns about the security of personal information, and difficulty in customizing, formatting, and downloading resumes to companies' specifications (Feldman and Klass, 2002).

So far, many authors have diligently worked towards the recruiters. They have created different models to make it feasible to employers to screen eligible candidates on various criteria. Different methodologies including fuzzy logic gives guidelines for recruiters. There is one of the models which improves the accuracy of matching candidates with job requirement. EXPERT, an intelligent tool for screening candidates for recruitment using ontology mapping as the existing e-recruitment tools have been mainly used for the storage of applicant contact data (Kumaran and Sankar, 2013). Furthermore, and to make it easier for employers, the implementation of fuzzy expert system (FES) tool for selection of qualified job applicants with the aim of minimizing the rigor and subjectivity associated with the candidate selection process was explained by Daramola. Et al. (2010).

While the authors have been ranking candidates on their eligibility, what is the parameter to rank the recruiting websites? Li.T and Chen.L, gave an outlook on ranking recruiting websites. They considered four criteria, content system, user system, manipulative system and technical system with different 19 different sub-criteria to evaluate a website with little ambiguity (Li and Chen, 2010). But the idea to rank the criteria will help to attain some progress for this paper. We in this paper intend to rank the online portals, which will be an extension of the effort of the above authors with different parameters and in a different geographical location.

While growth rate of online recruiting is increasing and advantages of e-recruiting is well understood, the online flow from online labor market is far from optimal (Mochol M., Wache H., and Nixon L. ,2007) and using more web technologies can significantly increase market transparency, lower transaction costs and speed up the procurement process. We have online job portals, official websites which accept applications, what's next? What if we can integrate the job portals by Meta-search? According to Dorn.J, each result obtained by a job portal is sent to the meta-search engine that ranks the

result of all received job offers according to user's preferences. Modern human resource management focuses more on competencies than on job titles or positions. At the moment only few portals reflect this trend (Dorn and Naz, 2007) but the flaws in this method are not yet revealed or discussed and is in process for better understanding. The internet job search which appeared to be either ineffective or counterproductive a decade ago is now associated with about a 25 percent unemployment durations (Kuhn P and Mansour H, 2014). The significance of job portals increased so much that the modern online portals to outshine the traditional job portals like CareerBuilder and Monster have started to include networking (vice-versa). For example, while LinkedIn is primarily used for networking, it also allows companies to list jobs and users to research companies where they might want to work. In 2011, LinkedIn introduced an "Apply within LinkedIn" button that allows users to apply for jobs using their LinkedIn profiles as resumes. Now LinkedIn is the most popular professional network.

## RESEARCH METHODOLOGY

The article based on the analysis and knowledge of literature review proposes a hypothesis to select the decision makers of this research.

*Null Hypothesis: Job seekers of all domains use similar online job portals*

*Alternative Hypothesis: Job seekers of different domains use different online portals.*

After conducting a series of interviews, with students and faculty of different domains and majors, it is understood that different job seekers prefer different kind of methods and different kind of online portals. Job seekers in academic field, for high school and university level jobs, use academic job sites such as Chronicle of higher education, Academicjobsonline, HigherEdJobs etc. Whereas job seekers in creative fields like music and art choose different portals like Creativehotlist, Artistcommunities, and Artjobs websites for better opportunities over Indeed and Monster. The jobseekers of science, computer engineering and management domain collectively and selectively use portals like Indeed, LinkedIn, Glass door and others.

To reduce the disparity among the opinions of decision makers of this research, the opinions of job seekers in science, health, engineering and management domain are considered to select the criteria as they are the major stakeholders of the popular online job portals.

### **Survey**

An online survey with six questions in total was conducted and the results obtained were used in pair-wise comparisons. The survey's aim is to select the criteria from the preferences of decision makers. The survey received 53 responses which is greater than the minimum and acceptable sample size of 30. The questions used in survey are included in appendix. The questions initially have discussed about the background of the respondent on education and their relevance to this paper, after which requests for their preferences in an online job portal. The results of question 6 are used prominently and their weightage are presented in Table 3. Nine preferences of job seekers were suggested to the job seekers who weighted them on importance scale.

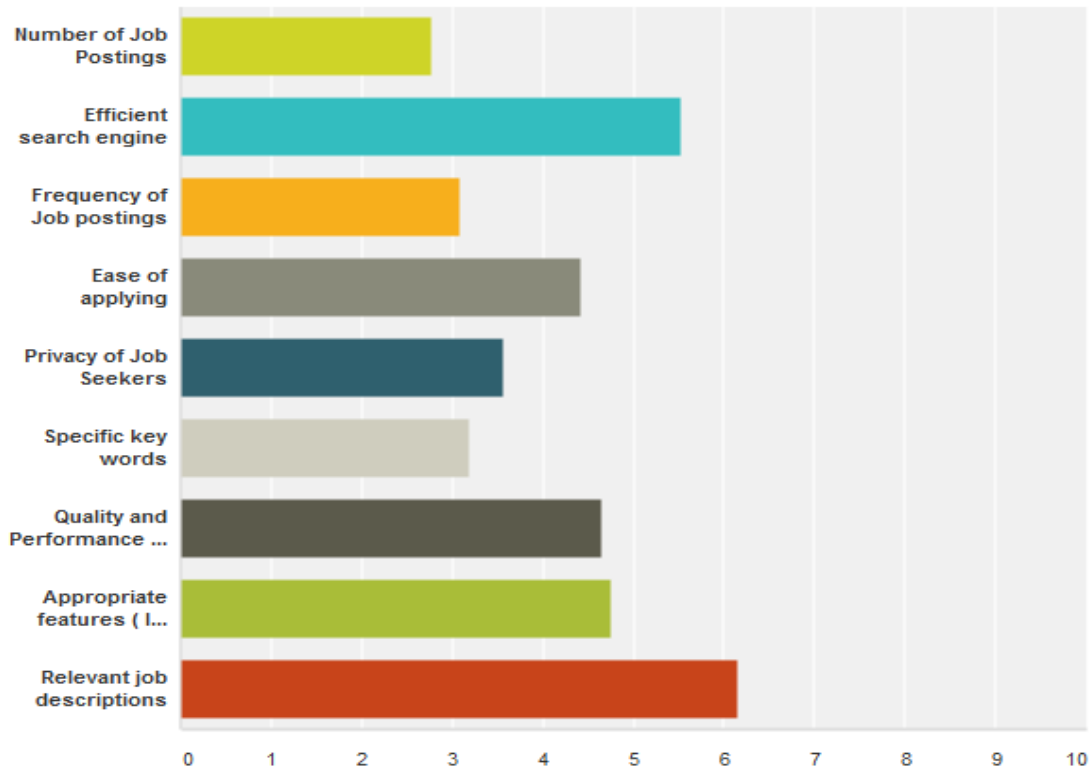
Table 3: Weightage Results

Preferences	Weightage	Ranking
Number of job posting	2.77	
Efficient search engine	5.54	2
Frequency of Job Postings	3.08	
Ease of applying	4.42	5
Privacy of Job Seekers	3.58	6
Specific Key Words	3.19	
Quality and Performance of Portal	4.65	4
Appropriate features	4.77	3
Relevant Job Descriptions	6.15	1

Figure 3: Survey results

**Rate the importance of following criteria in an online job portal**

Answered: 53 Skipped: 0



**Criteria**

The criteria of this paper are based on the survey explained above, six of the preferences are selected as criteria for this paper and they are as follows

Appropriate features (AF) Job seekers may or may not have experience, so if there are supporting appropriate features, which would add weightage to their profiles. By the term appropriate features, it is the availability of recommendations of profile, providing referral, ability to attach cover letter, resume builder/shaper, for example.

Quality and performance of portal (Q&P) Literature review suggests job seekers are preferring portals with better quality and performance, because of which the popular recruiting companies are including the 'apply online' facility in their company websites with specified career page. Good pace of website, less technical glitches allows job seekers applying and searching at ease.

Privacy of job seekers (P) with inputs from job seekers in the interviews conducted for the paper, job seekers with experience, expressed that privacy of job seekers is not being a point of priority in online portals. They also suggested that their profiles are being duplicated or their resumes are being manipulated. Hence, this is included as criteria.

Efficient search engine (ESE) this criteria as clearly stated in its name, is the efficiency of search engine in an online portal. The efficiency can be defined as the relevant search results one usually receives. The search engine can allow more than one specific key word, which can actually filter the results appropriately. This also depends on the database provided by the company. In the survey, this was ranked 2<sup>nd</sup> in the priority.

Relevant job description (RJD) Job descriptions play a key role for any job seeker while applying. Relevant job description helps job seeker understand their eligibility to apply. Without proper/relevant job description both employers and employees are at loss. Job seekers may lose an opportunity because of the ambiguity or may waste their time in the applying process

Ease of applying (EA) The process of applying jobs takes 30 mins to 45 mins on an average, so with the option of ease of applying, this can be reduced to mere seconds. Applying first is equally important to applying the right job. This criterion was considered based on the one of the job seekers' opinion and was shortlisted in the survey conducted.

The abbreviations mentioned are used only for this paper for the ease of understanding while computing.

**Alternatives**

There are thousands of job portals in the market, this paper focuses on five of the popular or trending portals. These alternatives are suggested by job seekers, the stakeholders of online job portals, hence relevant to the research.

**Dice:** This job search engine was started in 1990 and still continues to be prominent recruiting medium. At present with 500+ employees, Dice claims to have approximately 80,000 tech job postings on its portal. This portal according to users connects job seekers to various employers and staffing agencies, increasing the probability of landing a job



**Zip Recruiters:** launched in 2010, Zip Recruiters is rapidly and efficiently growing in job portal market. Claims to have seven million active job seekers each month. The unique and main essence of this portal is that it pools job posting from various websites to one place.

**LinkedIn:** The world’s popular networking and job search engine was founded in 2002 and claims to have 400+ million users. LinkedIn was ranked as 20<sup>th</sup> most popular website in October 2016, by Alexa Internet ranking. This portal is known for connecting people and also helping them job related posts and alerts. Experienced job seekers can have recommendations as well.

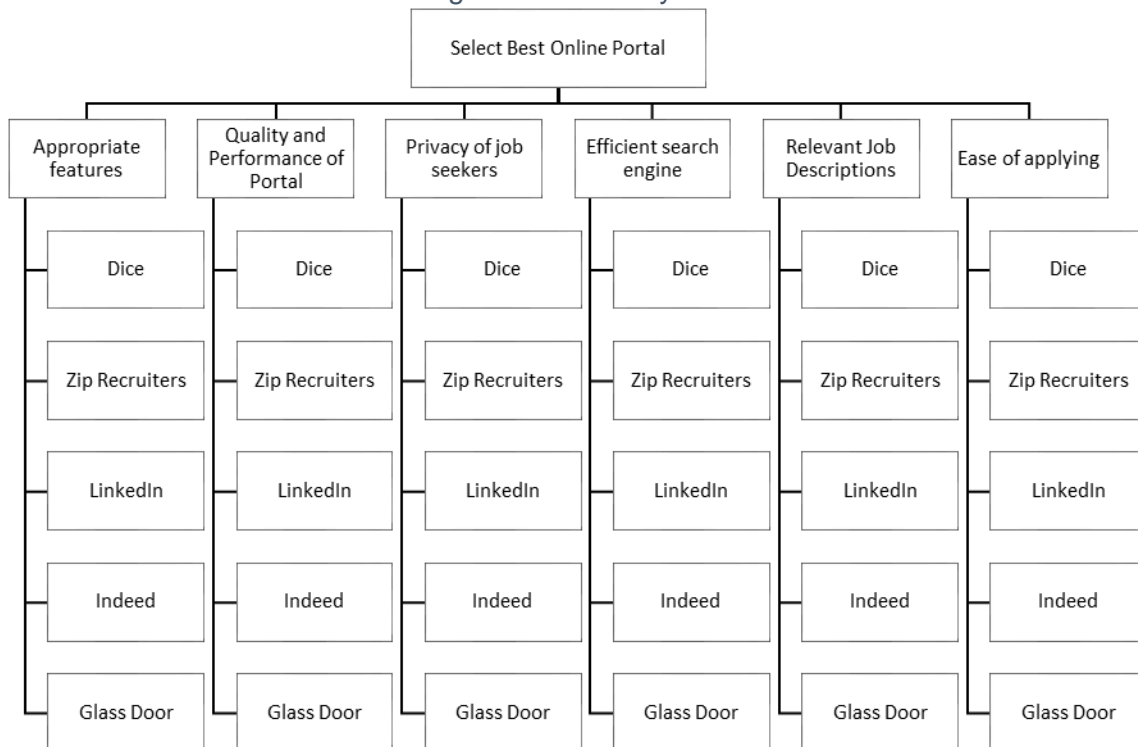
**Indeed:** This online portal was launched in 2004 and is available in over 60 countries and in 28 languages. They provide job postings, job alerts, and job trends services and is very much popular with students in the U.S. Specifically known for its related search options.

**Glass Door:** Launched in 2007, Glass door uses a slogan ‘get hired. Love your job’. Glass door provides latest job postings to its users based on key words and location. The uniqueness of glass door is the reviews posted anonymously by different employees. Job seekers can access interview questions, salary and employee review.

**Hierarchy Tree**

As explained in AHP methodology, a hierarchy tree is drawn, with the goal at the upper end i.e. selection of online job portal, followed by the objectives (criteria ), which is further breakdown to alternatives.

Figure 4: Hierarchy tree



**Pair-wise comparisons and Consistency Check**

The pair-wise comparison of criteria is explained here for example, the rest of the pair-wise comparisons are included in appendix. These pair-wise comparisons are performed based on the weightage given in Table 3. The relative importance is given based on the table 1. Scale of preferences. The values are normalized and priority vector helps us in ranking the criteria. As this is based on survey the criteria ranking is similar to the survey ranking with RJD having 35% of importance in decision making. Later, consistency is calculated with random index numbers are shown in Table 2. The consistency ratio is 2% i.e. 0.02. Therefore, is consistent. Now, pair-wise comparison of alternatives is performed with respect to each criteria and consistency is also checked. Overall consistency is also calculated after obtaining necessary results.

Table 4: Pairwise Comparison of Criteria

Criteria	AF	Q&P	P	ESE	RJD	EA
AF	1.00	1.00	3.00	1.00	0.50	2.00
Q&P	1.00	1.00	2.00	2.00	0.50	2.00
P	0.33	0.50	1.00	0.33	0.17	1.00
ESE	1.00	0.50	3.00	1.00	0.50	2.00
RJD	2.00	2.00	6.00	2.00	1.00	5.00
EA	0.50	0.50	1.00	0.50	0.20	1.00
Sum	5.83	5.50	16.00	6.83	2.87	13.00

Table 5: Normalization of Matrix

Criteria	AF	Q&P	P	ESE	RJD	EA	Priority Vector
AF	0.17	0.18	0.19	0.15	0.17	0.15	<b>0.17</b>
Q&P	0.17	0.18	0.13	0.29	0.17	0.15	<b>0.18</b>
P	0.06	0.09	0.06	0.05	0.06	0.08	<b>0.07</b>
ESE	0.17	0.09	0.19	0.15	0.17	0.15	<b>0.15</b>
RJD	0.34	0.36	0.38	0.29	0.35	0.38	<b>0.35</b>
EA	0.09	0.09	0.06	0.07	0.07	0.08	<b>0.08</b>
<b>Sum</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>

Table 6: Consistency Check

Product	Ratios
1.032327	6.100302
1.120668	6.117215
0.400141	6.087418
0.940727	6.105685
2.141151	6.09543
0.465734	6.088224

Average 6.099046

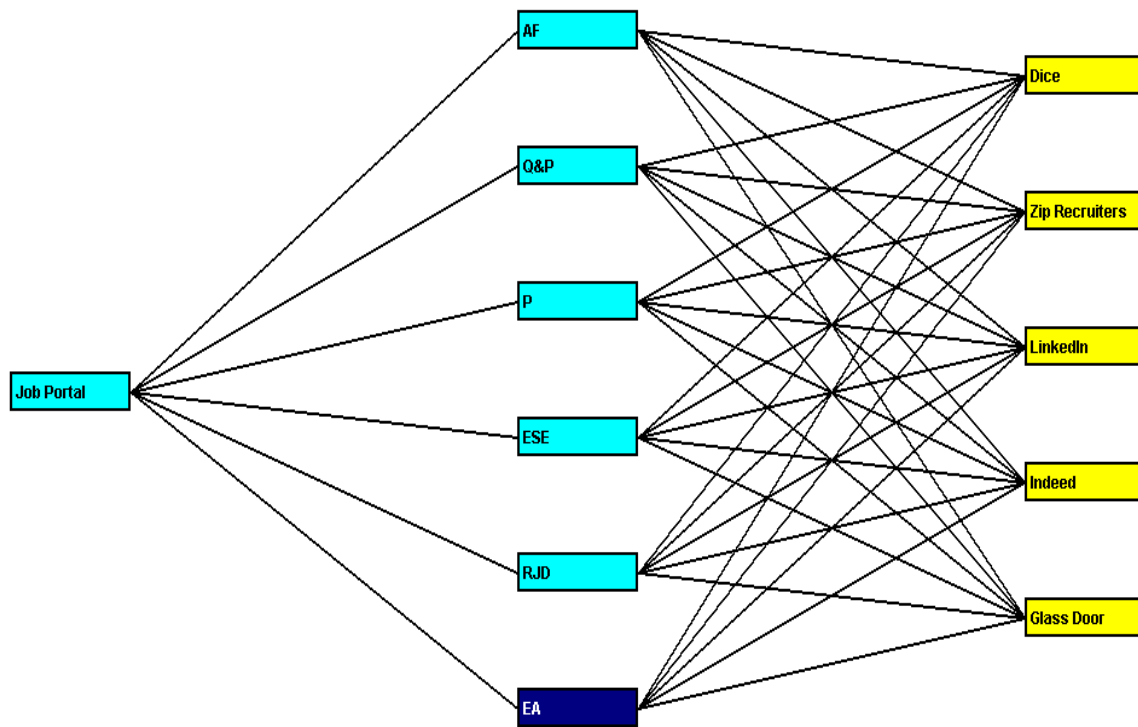
i.e.

CI =	0.019809
CR =	0.015975
CR =	2%

**Application of Web-HIPRE**

Using the web version of Web-HIPRE, the following value tree similar to hierarchy tree in Figure 6 is generated. After giving pair-wise values to each criteria and alternatives with respect to each criterion, the composite priorities of the AHP are provide by the software. They are provided in both bar graph and values.

Figure 5: Value tree using Web-HIPRE



**RESULTS**

It is understood that the relevant job description (RJD), efficient search engine (ESE), and appropriate features (AF) are the most effective criteria in deciding the best online portal. Below is the table explaining the overall consistency and priority calculations. Indeed is ranked 1<sup>st</sup> among the five alternatives with its efficiency in ESE and RJD, 0.42 and 0.40 respectively. Zip Recruiters and LinkedIn closely follow Indeed with 2<sup>nd</sup> and 3<sup>rd</sup> positions respectively. The overall consistency ratio is 0.015442 i.e. 2% less than 10%. Therefore, these results can be considered statistically reliable.

Table 7: Overall Consistency Matrix

	AF	Q&P	P	ESE	RJD	EA	weighted Scores	
Dice	0.06	0.05	0.08	0.06	0.04	0.06		0.05
Zip Recruiters	0.28	0.31	0.16	0.30	0.27	0.33		0.28
LinkedIn	0.45	0.38	0.03	0.19	0.20	0.38		0.28
<b><u>Indeed</u></b>	0.17	0.16	0.29	0.42	0.40	0.19		<b><u>0.30</u></b>
Glass Door	0.04	0.10	0.44	0.04	0.09	0.03		0.09

<b>Set of weights =</b>	<b>1</b>	<b>0.15</b>	<b>0.09</b>	<b>0.06</b>	<b>0.3</b>	<b>0.27</b>	<b>0.13</b>
<b>CI =</b>	<b>0.020</b>	<b>0.015</b>	<b>0.0084</b>	<b>0.024</b>	<b>0.015</b>	<b>0.016</b>	<b>0.024</b>
<b>RI =</b>	<b>1.24</b>	<b>1.12</b>	<b>1.12</b>	<b>1.12</b>	<b>1.12</b>	<b>1.12</b>	<b>1.12</b>

$\sum W_i C_i$       0.03644  
 $\sum W_i R_i$       4  
 $\sum W_i R_i$       2.36

Overall Consistency  
 ncy      **CR = 0.01544**  
                  **CR = 2%**

Results using web-HIPRE are very much similar to the calculated version of AHP and are as follows, the bar color graph explains the weightage of each criteria which helped in making the alternative best among others. The data values are also given to add support.

Figure 6: Bar graph results

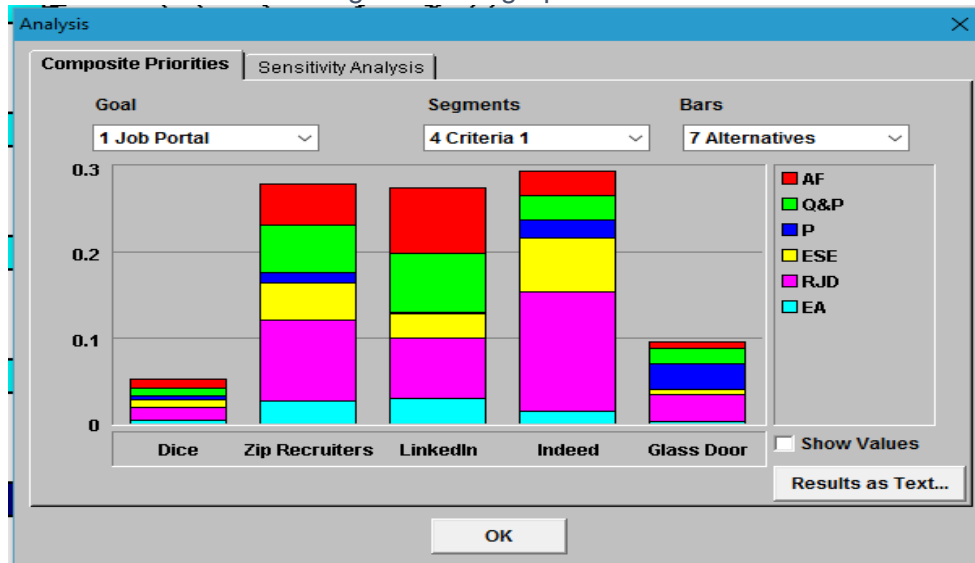
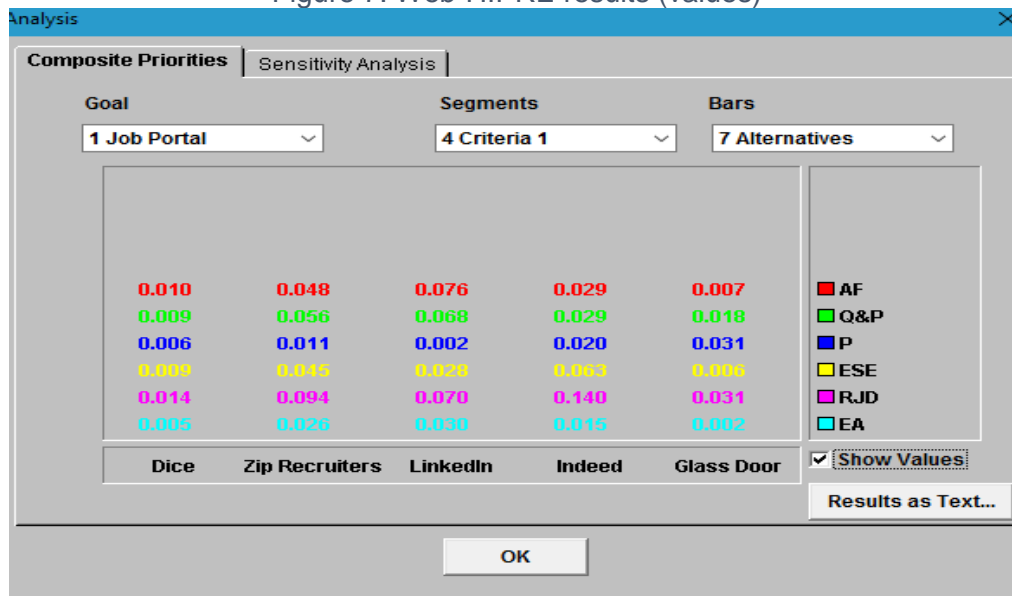


Figure 7: Web-HIPRE results (values)



**Analysis of Results**

The paper is consistent statistically and using a web software, the results are portrayed. Consistency check validated the process with 2% as overall consistency rate. The results clearly state and explain that the online job portal ‘Indeed’ is the most effective in terms of appropriate features, quality and performance, privacy of job seekers, efficient search engine, relevant job description and ease of applying. All the criteria have their weightage being implicated in the results. This doesn’t explain that Indeed is good in all the aspects of criteria, but is relatively better. The areas of improvement are where it is scored low i.e. appropriate features, quality and performance and ease of applying. The

online portals must focus on meeting the defined criteria to increase the trustworthiness of their stakeholders in particular, the job seekers.

## **CONCLUSION**

This research is intended to help job seekers set their priorities in efficient portals which can help them in succeeding to get the job of their choice. As part of research, a hypothesis is considered to define the decision makers, the job seekers in the domain of science, engineering, management and health, based on the interviews conducted. Online survey was considered as the source of reliable data in selection of criteria and computing pair-wise comparisons with 53 respondents. The results of the online survey were used to shortlist the criteria and conduct the process and validate it statistically which derive the result that Indeed is the best online job portal in the United States.

## **FUTURE RESEARCH**

The paper deals with only job seekers in the domain of science, engineering, management and health. There can be future research in the domains of academic and creative fields. Usage of different methodology and a larger unit of respondents may increase the scope of the research in future.

## **APPENDIX:**

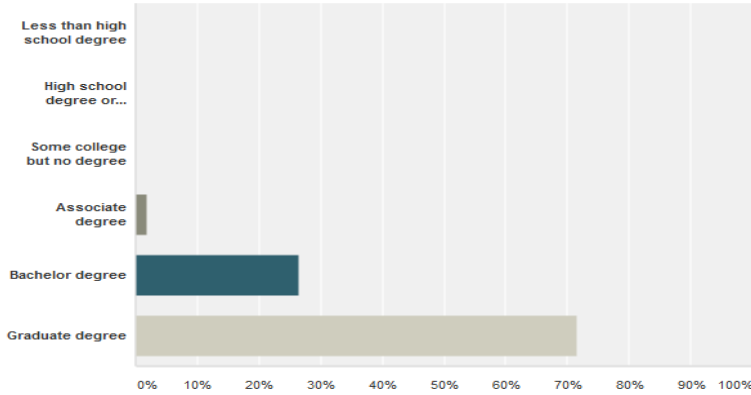
### **Survey Questionnaire**

1. Are you an active job seeker?
2. What is the highest level of school you have completed or the highest degree you have received?
3. Which of the following categories best describes your employment status?
4. What is your domain of job search?
5. What is the best job search method?
6. Rate the importance of following criteria
  - Number of job posting
  - Efficient search engine
  - Frequency of Job Postings
  - Appropriate features (Referral, attachment of cover letter etc.)
  - Ease of applying
  - Privacy of Job Seekers
  - Specific Key Words
  - Quality and Performance of Portal
  - Relevant Job Descriptions

### Remaining Survey Results:

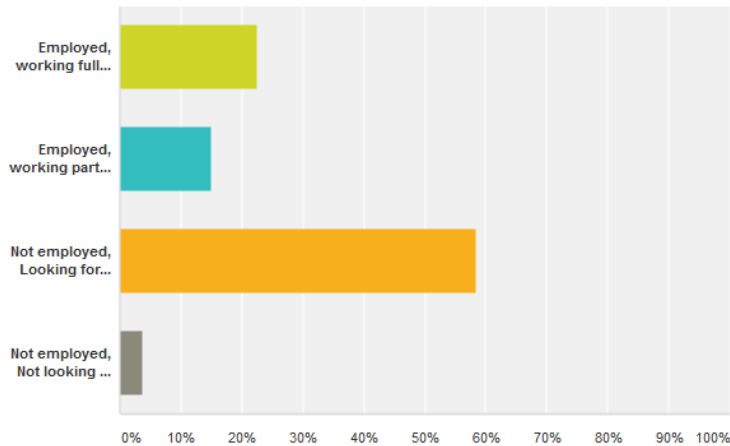
**What is the highest level of school you have completed or the highest degree you have received?**

Answered: 53 Skipped: 0



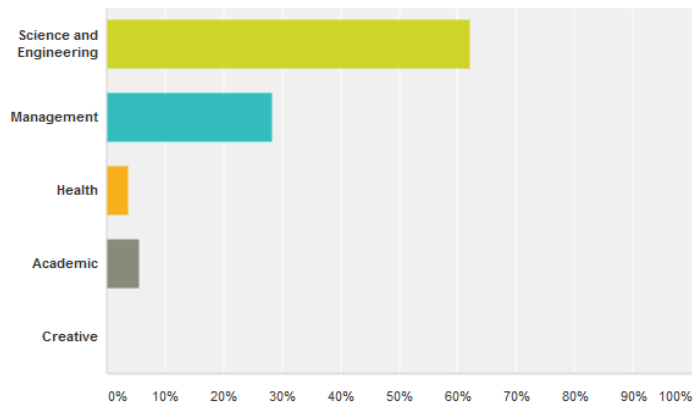
**Which of the following categories best describes your employment status?**

Answered: 53 Skipped: 0



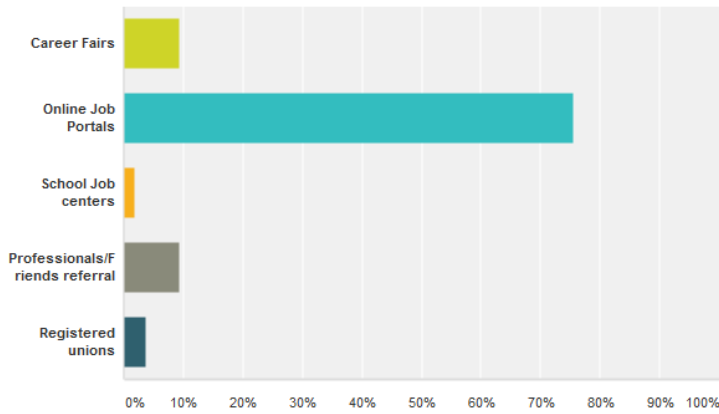
**What is your domain of job search?**

Answered: 53 Skipped: 0



**What is the best job search method ?**

Answered: 53 Skipped: 0



**Pair-Wise Comparisons:**

AF					
	Dice	Zip Recruiters	LinkedIn	Indeed	Glass Door
Dice	1.00	0.20	0.14	0.33	2.00
Zip Recruiters	5.00	1.00	0.50	2.00	8.00
LinkedIn	7.00	2.00	1.00	3.00	9.00
Indeed	3.00	0.50	0.33	1.00	6.00
Glass Door	0.50	0.13	0.11	0.17	1.00
<b>Sum</b>	<b>16.50</b>	<b>3.83</b>	<b>2.09</b>	<b>6.50</b>	<b>26.00</b>

AF						Priority Vector
	Dice	Zip Recruiters	LinkedIn	Indeed	Glass Door	
Dice	0.06	0.05	0.07	0.05	0.08	<b>0.06</b>
Zip Recruiters	0.30	0.26	0.24	0.31	0.31	<b>0.28</b>
LinkedIn	0.42	0.52	0.48	0.46	0.35	<b>0.45</b>
Indeed	0.18	0.13	0.16	0.15	0.23	<b>0.17</b>
Glass Door	0.03	0.03	0.05	0.03	0.04	<b>0.04</b>
<b>Sum</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>

Product
0.31176
1.448056
2.286574

Ratios
5.035856
5.100956
5.117902



0.86434	5.043719
0.180706	5.010783
Average=	5.061843
<b>CI =</b>	<b>0.015461</b>
<b>CR =</b>	<b>0.013804</b>
i.e.	<b>CR = 1%</b>

Q&P					
	Dice	Zip Recruiters	LinkedIn	Indeed	Glass Door
Dice	1.00	0.20	0.14	0.33	0.50
Zip Recruiters	5.00	1.00	1.00	2.00	3.00
LinkedIn	7.00	1.00	1.00	3.00	4.00
Indeed	3.00	0.50	0.33	1.00	2.00
Glass Door	2.00	0.33	0.25	0.50	1.00
<b>Sum</b>	<b>18.00</b>	<b>3.03</b>	<b>2.73</b>	<b>6.83</b>	<b>10.50</b>

Q&P						Priority Vector
	Dice	Zip Recruiters	LinkedIn	Indeed	Glass Door	
Dice	0.06	0.07	0.05	0.05	0.05	<b>0.05</b>
Zip Recruiters	0.28	0.33	0.37	0.29	0.29	<b>0.31</b>
LinkedIn	0.39	0.33	0.37	0.44	0.38	<b>0.38</b>
Indeed	0.17	0.16	0.12	0.15	0.19	<b>0.16</b>
Glass Door	0.11	0.11	0.09	0.07	0.10	<b>0.10</b>
<b>Sum</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>

Product	Ratios
0.27142	5.020893
1.566796	5.04553
1.929253	5.062731
0.795027	5.028059
0.482176	5.011045
Average=	5.033651
<b>CI =</b>	<b>0.008413</b>

<b>CR=</b>	<b>0.007511</b>
<b>CR=</b>	<b>1%</b>

<b>P</b>					
	Dice	Zip Recruiters	LinkedIn	Indeed	Glass Door
Dice	1.00	0.50	3.00	0.25	0.17
Zip Recruiters	2.00	1.00	6.00	0.50	0.33
LinkedIn	0.33	0.17	1.00	0.11	0.13
Indeed	4.00	2.00	9.00	1.00	0.50
Glass Door	6.00	3.00	8.00	2.00	1.00
<b>Sum</b>	<b>13.33</b>	<b>6.67</b>	<b>27.00</b>	<b>3.86</b>	<b>2.13</b>

<b>P</b>						<b>Priority Vector</b>
	Dice	Zip Recruiters	LinkedIn	Indeed	Glass Door	
Dice	0.08	0.08	0.11	0.06	0.08	<b>0.08</b>
Zip Recruiters	0.15	0.15	0.22	0.13	0.16	<b>0.16</b>
LinkedIn	0.03	0.03	0.04	0.03	0.06	<b>0.03</b>
Indeed	0.30	0.30	0.33	0.26	0.24	<b>0.29</b>
Glass Door	0.45	0.45	0.30	0.52	0.47	<b>0.44</b>
<b>Sum</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>

<b>Product</b>	<b>Ratios</b>
0.410709	5.079375
0.821418	5.079375
0.17518	5.015519
1.465224	5.1317
2.25774	5.16676

Average= 5.094546

<b>CI =</b>	<b>0.023636</b>
<b>CR=</b>	<b>0.021104</b>
<b>CR=</b>	<b>2%</b>

i.e.

<b>ESE</b>					
	Dice	Zip Recruiters	LinkedIn	Indeed	Glass Door
Dice	1.00	0.20	0.33	0.14	2.00

Zip Recruiters	5.00	1.00	2.00	0.50	9.00
LinkedIn	3.00	0.50	1.00	0.50	6.00
Indeed	7.00	2.00	2.00	1.00	9.00
Glass Door	0.50	0.11	0.17	0.11	1.00
<b>Sum</b>	<b>16.50</b>	<b>3.81</b>	<b>5.50</b>	<b>2.25</b>	<b>27.00</b>

<b>ESE</b>						<b>Priority Vector</b>
	Dice	Zip Recruiters	LinkedIn	Indeed	Glass Door	
Dice	0.06	0.05	0.06	0.06	0.07	<b>0.06</b>
Zip Recruiters	0.30	0.26	0.36	0.22	0.33	<b>0.30</b>
LinkedIn	0.18	0.13	0.18	0.22	0.22	<b>0.19</b>
Indeed	0.42	0.52	0.36	0.44	0.33	<b>0.42</b>
Glass Door	0.03	0.03	0.03	0.05	0.04	<b>0.04</b>
<b>Sum</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>

<b>Product</b>	<b>Ratios</b>
0.314332	5.051219
1.509477	5.085078
0.943164	5.022786
2.139744	5.11985
0.177049	5.027128

Average= 5.061212

<b>CI =</b>	<b>0.015303</b>
<b>CR=</b>	<b>0.013663</b>
<b>CR=</b>	<b>1%</b>

i.e.

<b>RJD</b>					
	Dice	Zip Recruiters	LinkedIn	Indeed	Glass Door
Dice	1.00	0.17	0.20	0.13	0.50
Zip Recruiters	6.00	1.00	2.00	0.50	3.00
LinkedIn	5.00	0.50	1.00	0.50	3.00
Indeed	8.00	2.00	2.00	1.00	4.00
Glass Door	2.00	0.33	0.33	0.25	1.00
<b>Sum</b>	<b>22.00</b>	<b>4.00</b>	<b>5.53</b>	<b>2.38</b>	<b>11.50</b>

RJD						Priority Vector
	Dice	Zip Recruiters	LinkedIn	Indeed	Glass Door	
Dice	0.05	0.04	0.04	0.05	0.04	<b>0.04</b>
Zip Recruiters	0.27	0.25	0.36	0.21	0.26	<b>0.27</b>
LinkedIn	0.23	0.13	0.18	0.21	0.26	<b>0.20</b>
Indeed	0.36	0.50	0.36	0.42	0.35	<b>0.40</b>
Glass Door	0.09	0.08	0.06	0.11	0.09	<b>0.09</b>
<b>Sum</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>

Product	Ratios
0.221756	5.054247
1.391539	5.132675
1.011229	5.034037
2.03514	5.103259
0.43012	5.040034

Average= 5.072851

<b>CI =</b>	<b>0.018213</b>
<b>CR=</b>	<b>0.016261</b>
<b>CR=</b>	<b>2%</b>

i.e.

EA					
	Dice	Zip Recruiters	LinkedIn	Indeed	Glass Door
Dice	1.00	0.17	0.14	0.25	2.00
Zip Recruiters	6.00	1.00	1.00	2.00	8.00
LinkedIn	7.00	1.00	1.00	3.00	9.00
Indeed	4.00	0.50	0.33	1.00	8.00
Glass Door	0.50	0.13	0.11	0.13	1.00
<b>Sum</b>	<b>18.50</b>	<b>2.79</b>	<b>2.59</b>	<b>6.38</b>	<b>28.00</b>

EA						Priority Vector
	Dice	Zip Recruiters	LinkedIn	Indeed	Glass Door	
Dice	0.05	0.06	0.06	0.04	0.07	<b>0.06</b>
Zip Recruiters	0.32	0.36	0.39	0.31	0.29	<b>0.33</b>
LinkedIn	0.38	0.36	0.39	0.47	0.32	<b>0.38</b>

Indeed	0.22	0.18	0.13	0.16	0.29	<b>0.19</b>
Glass Door	0.03	0.04	0.04	0.02	0.04	<b>0.03</b>
<b>Sum</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>

Product	Ratios
0.282621	5.053757
1.711059	5.12761
1.994342	5.206869
0.983672	5.087612
0.170414	5.0101

Average= 5.09719

<b>CI =</b>	<b>0.024297</b>
<b>CR=</b>	<b>0.021694</b>
<b>CR=</b>	<b>2%</b>

i.e.

**Web-HIPRE results in text:**

- Value Tree
- 1 Job Portal 0.000
- 4 AF 0.170
- 7 Dice 0.060
- 7 Zip Recruiters 0.280
- 7 LinkedIn 0.450
- 7 Indeed 0.170
- 7 Glass Door 0.040
- 4 Q&P 0.180
- 7 Dice 0.050
- 7 Zip Recruiters 0.310
- 7 LinkedIn 0.380
- 7 Indeed 0.160
- 7 Glass Door 0.100
- 4 P 0.070
- 7 Dice 0.080
- 7 Zip Recruiters 0.160
- 7 LinkedIn 0.030
- 7 Indeed 0.290
- 7 Glass Door 0.440
- 4 ESE 0.150
- 7 Dice 0.060
- 7 Zip Recruiters 0.300
- 7 LinkedIn 0.190
- 7 Indeed 0.420
- 7 Glass Door 0.040
- 4 RJD 0.350
- 7 Dice 0.040
- 7 Zip Recruiters 0.270

7 LinkedIn 0.200  
 7 Indeed 0.400  
 7 Glass Door 0.090  
 4 EA 0.080  
 7 Dice 0.060  
 7 Zip Recruiters 0.330  
 7 LinkedIn 0.380  
 7 Indeed 0.190  
 7 Glass Door 0.030

#### Composite Priorities

Dice	Zip Recrui	LinkedIn	Indeed	Glass Door	
AF	0.010	0.048	0.076	0.029	0.007
Q&P	0.009	0.056	0.068	0.029	0.018
P	0.006	0.011	0.002	0.020	0.031
ESE	0.009	0.045	0.028	0.063	0.006
RJD	0.014	0.094	0.070	0.140	0.031
EA	0.005	0.026	0.030	0.015	0.002
Overall	0.053	0.280	0.276	0.296	

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