


## Chapter 12

# Information Technology in the Search for Employment: Artificial Intelligence to Find the Best Job


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### ABSTRACT

*Employability is one of the main concerns of the citizens of developed countries. Over the last 10 years, it has become popular to use technology to find employment and better career opportunities. Currently, there are many technology-powered tools available which offer their users (candidates and companies) the possibility of finding the best job opportunities/employees. However, technology is becoming increasingly advanced and current employment-oriented websites must keep up with those standards. Thanks to the computing and information processing capabilities provided by artificial intelligence, today's websites are not mere directories of jobs and candidates; instead, they make it possible to automatically filter search results according to the characteristics of candidates and jobs. This chapter presents a review of state-of-the-art technologies aimed at improving employability and analyzes the technological advances in this sector.*

DOI: 10.4018/978-1-7998-4156-2.ch012

## INTRODUCTION

The economic crisis that began in 2008 (Korotayev, & Tsirel, 2010), led developed countries to a general concern about employment and job stability and this concern continues until today (Tanveer et al., 2012). The loss of millions of job positions, especially in North America and Europe, meant that many families were left without monthly income, the consequences of which we all know (Chang et al., 2013). This event marked a milestone in the search for employment, which began to take longer than the unemployed had imagined.

Job search websites had existed prior to the crisis but their use was largely unnecessary. However, with the economic crisis this type of websites became highly popular, turning several of them into reference websites, such as LinkedIn -founded in 2002 and launched in mid-2003 (LinkedIn Corporation, 2019). Today those websites continue to be important, LinkedIn came first in a ranking of this type of portals and it remains the 23rd most visited web page in the world according to the specialized portal Alexa (Alexa Internet, 2019).

Thanks to the Internet, the way people look for work changed drastically. A few years ago, it was common to look for job offers published in the local media, such as local newspapers (Holzer, 1988), through word of mouth or sending printed CVs to company offices or in digital format via e-mail. However, thanks to the emergence of computerized systems aimed at the selection of employees or job opportunities, traditional methods seem to have died down. The search for employment through information technology has become the main way of applying for a job vacancy (Janta, & Ladkin, 2013) (Hargittai, & Litt, 2013).

Users (candidates and companies) have quickly adopted the Internet as a new tool in the search for employment. The rate of acceptance was so high that new portals, mainly websites, began to emerge apart from the aforementioned LinkedIn. Many of those websites have been created general job search -for users working in any sector, such as Monster (Monster Worldwide, 2019), Indeed (Indeed, 2019) or InfoJobs (InfoJobs, 2019)- others have been designed for specific sectors - for example Tecnoempleo (Tecnoempleo, 2019) for tech professionals. However, in the last years there has been a trend in general websites of the type of LinkedIn (initially intended as a network of contacts between professionals), these include Viadeo (FigaroClassfields, 2019), XING (XING, 2019) or beBee (Affinity Social Network, 2019), and digital outsourcing agencies such as Jobandtalent (Jobandtalent, 2019) or Adecco (Adecco, 2019).

The emergence of information technology in the job search sector has led to numerous advances which have greatly favoured both parties: on the one hand, it has made it possible for employees to look for better career opportunities, while, on the other hand, it has greatly broadened the range of candidates from which employers can choose.

Consequently, increased competitiveness is a downside for both potential employees and employers. A much greater number of candidates compete for the same position; thus, the chance of getting hired is lower. Similarly, it may become difficult for companies to get hold of qualified workers because they will have a greater number of vacancies to choose from.

Over the last years there have been many developments aimed at meeting the needs of users (Michavila et al., 2018), such as the inclusion of recommender systems that simplify the task of searching through a large amount of information. However, technology still has much more to offer. The increased processing capacity of computers, combined with the emergence of new distributed computing and Big Data analysis techniques, open a new range of possibilities for creating more user-adapted functionalities, improving user experience when using this type of website.

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