Article

The Opportunity Presented by Technological Innovation to Attract Valuable Human Resources

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Abstract: Technological innovation fostered by the use of the Internet and social networks in the business context requires the modification of the human resources (HR) management process to use the opportunities to obtain a sustainable competitive advantage. This paper analyzes the opportunities provided by technological innovation, which allows for the development of a new e-recruitment and selection process to access and attract valuable HR regardless of their geographical location. Adapting the traditional selection process, companies can incorporate new 2.0 selection techniques that generate an extraordinary improvement opportunity in human resource management. Given the need for members of the human resources department to master new technologies in order to maximize the benefits of e-recruitment and selection, the aim of this work is to carry out a case study in a leading company in the mechanical engineering sector. To this end, we will start by reviewing the literature. Then, the work offers a model of HR management considering the influence of technological innovation on the attraction of valuable human resources, integrating the previous theoretical contributions of experts in the field. Based on the observation of the case study, the results show the main factors, human resource practices, and management results and behaviors undertaken by a multinational company. The case study allows researchers to learn from professionals and business leaders and presents a roadmap that can be used to manage e-recruitment and selection.

Keywords: e-recruitment and selection; valuable human resources; technological innovation; big data; employer branding; networking

1. Introduction

Nowadays, organizations have to position and compete in rapidly and constantly changing environments, which have been called hypercompetitive and even chaotic in some cases [1]. Globalization demands changes in business strategies and the organization of work carried out in companies, which creates uncertainties in the way human resource (hereinafter, HR) strategies are managed [2]. Several external factors, such as the economic situation, technological changes, the degree of internationalization, or the competitiveness of the industry, must also be considered [3].

New technologies began as tools used in social and personal life, but they are now part of working life. A business-focused use of technologies gave birth to what has been called Web 2.0. [4] summarized the core competencies that Web 2.0 firms show: Using unpackaged software, with cost-effective scalability; having control over unique, hard-to-recreate data sources that get richer as more people use them; trusting users as co-developers; harnessing collective intelligence; leveraging the long tail through customer self-service; software above the level of a single device; and lightweight user interfaces, development, and business models. Later Web 3.0, frequently called the semantic Web, has stressed the transformation of the Web into a database [5], profiting from the different technologies available.

The incorporation of new digital platforms to the recruitment and selection process has been a way for companies to strive for the best candidates. Companies no longer wait for the candidate to apply for a job, but look for and identify potential candidates, a favorable factor being communication, collaboration, or interaction between both parties [6] (. Given that e-recruitment and selection is a growing and important process for the recruitment of HR, it is critical to know the determining factors in developing it.

Traditional companies see globalization as a risk because they fail to manage the opportunities arising from technological advances. However, if a company is innovative, it can turn that risk into an opportunity, taking advantage of the potential of technological innovation to access the greatest talents, regardless of their geographical location.

HR management has thus been influenced by technological advances, which require changes for their correct implementation. HR is the most valuable and effective tool for companies that want to achieve their targets and becomes a key factor in implementing changes that lead to obtaining sustainable competitive advantages. This need to respond to changes in the business environment is challenging for companies.

The area that has undergone one of the most substantial changes, with the appearance of new opportunities, is the management of recruitment and selection of personnel [5]. The process of recruitment and selection of personnel is key to the proper functioning of a company. Its purpose is to hire the necessary and suitable human resources for the company to successfully manage its activities and achieve the results expected by all stakeholders [6].

The term e-recruitment and selection appears as a new way of recruiting and selecting personnel through the Internet. E-recruitment and selection is already a reality for companies, as well as a challenge. [7] consider that e-recruitment and selection has become a process compatible with traditional recruitment and selection techniques, which is characterized by being faster and having lower cost. However, the main advantage is that the wide reach of the Internet makes it possible to hire valuable HR located anywhere in the world, breaking down traditional communication barriers [8].

The aim of this work is to analyze in depth the e-recruitment and selection process in a business organization. We propose a model that integrates the key factors to configure an efficient strategy to incorporate valuable HR into enterprises. After analyzing the theoretical perspectives, qualitative information is obtained through a case study in order to answer the research question. To this end, a five-year stay was carried out in a leading company in the industrial engineering sector. Within this organization, those five years were considered the most important period of digital transformation in its history.

This work is structured in several sections. First, a review of the literature on the human resources selection process and the presence of the Internet and social networks in their management is presented. In the following section, we explain the methodology used in the case study. After presenting the results, we propose a management model and a roadmap of the recommended practices for managers involved in selection processes. Finally, we present the conclusions of this study, highlighting its implications and proposing future lines of research.

2. Theoretical Framework

2.1. Literature Review Protocol

A systematic review of academic writing is a selective and critical examination that seeks to analyze and integrate essential information from primary research studies on a particular subject. This procedure identifies relevant studies, assesses their quality, and summarizes their results. Reviews should be done objectively, rigorously, and meticulously [9]. A review is a very methodical task that requires: (1) Identifying existing studies, (2) analyzing their usefulness and relevance to a given research topic, and (3) gathering a number of studies conducted independently, sometimes showing conflicting results, and summarizing their implications.

A systematic review requires an information search strategy based on bibliographic databases, an appropriate assessment of the studies that will be included in the subsequent analysis, and, finally, an adequate summary of the information collected [10]. The collection of information should be comprehensive in order to avoid selection bias. For this purpose, the search should be made in as many sources as possible with appropriate selection criteria [11]. The search for articles was carried out using the search protocol shown in Table 1.

Table 1. Search protocol.

Database	*WoS*	*Scopus*
Geographical scope	Scientific Bibliography (worldwide)	Scientific Bibliography (worldwide)
Characteristics	Quality indicators: JCR impact factor Immediacy index Number of citations Quartiles	Quality indicators: SJR impact factor Number of citations Quartiles
Documents searched	Subject	Article Title, Abstract, Keywords
Search criteria	Journal articles Books	Journal articles Books
Data range	Every year until 2019	Every year until 2019
Date of search	26 May 2019	26 May 2019
Search terms	"Recruitment" "Selection process" "Human Resources"	"Recruitment" "Selection process" "Human Resources"
Number of documents	19	75
Filtering Process: Categories	Management and Business	Business, Management and Accounting
Final number of documents	12	33

Source: own elaboration.

An analysis of the year of publication shows that from 2017 onwards the number of articles and the frequency of publication increases. These results can be explained by the period of expansion of technologies to all areas of daily life of the population that is taking place and by the increasing importance of the process of digital transformation in organizations. Social networks continue to grow rapidly in a process of incorporation of users and integration of professionals through platforms and networks that are part of social, personal, and professional activities.

2.2. The E-Recruitment and Selection Process in the Acquisition of Valuable Human Resources

All applicants for a job must undergo a selection process when they enter the labor market. [12] defines selection as the process of choosing, from among a group of jobseekers, the individual best suited for a job and for the organization. The selection begins with the design of the process, defining the evaluation criteria and the techniques to be used. This process will integrate all the people responsible for the recruitment process in a company, as an indispensable part of human resource management [6].

The company demands valuable HR, which will be its future engine to achieve or maintain its competitive position. The selection process is complex and lengthy, and the application of the correct methodology is indispensable. Selection involves managing different stages that are linked with each other [13]. In order to achieve the objectives effectively, there must be proper interaction between selection activities and other HR management processes, such as job analysis, planning, recruitment, socialization, performance evaluation, and remuneration. The decision on the methodology developed

by each organization is as important as its continuous adaptation to changes. Transitional change addresses the psychological and organizational variables that predict and control the motivational and performance consequences of the work climate. This type of change may require a considerable unlearning process [14].

The selection of staff in a company plays a decisive role, since it is useful to find the right person for each job. According to [15], selection is the process by which an employer makes the decision of whether or not to hire candidates for a job. Similarly, selection is considered to be the choice, from among a group of qualified candidates attracted through the recruitment process, of the person who can correctly perform the job [16].

Miles and Mangold [17] indicate that personnel selection is a process that acts as a filter, given that it allows only a few people, those who have the required characteristics, to be part of the staff. Every knowledge and skill contributed by a candidate is a future value for the achievement of a sustainable competitive advantage by the company. This selection process will lay the foundation for sustaining better business results. It consists of the following stages: Pre-recruitment, selection, candidate report, decision making, and hiring. Following [6], the selection techniques are classified into four groups:

(1) Selection Interviews

The interview is the most traditional and most used tool. However, it is one of the most subjective and imprecise techniques. For this reason, the person in charge of carrying it out must be professionalized well in their techniques and tactics so as not to make mistakes. Many mistakes come from prejudice and behavioral predispositions. [15] defines the interview as a process of communication between two or more people in order to determine the suitability of a candidate for a job.

Aguilar Morales [18] considers that although the interview is the common and preferred methodology in many companies, it has limitations, such as subjectivity and interviewer bias. In its view, it may nevertheless have benefits for both applicants and interviewers because of the opportunity it provides to talk openly and describe the skills that make the candidate suitable for the job.

(2) Work Simulation Techniques

This type of technique can be used individually or in groups. According to [19], job simulation techniques consist of performing exercises that cover situations relevant to the role in question. They allow us to know beforehand the candidate's future behavior in the face of situations that they will have to face in the job.

Rather than assessing an individual's knowledge, simulation techniques attempt to measure their skills to apply such knowledge, and in order to be effective the test must have a high content validity, i.e., it must be representative of the job activities. For [6], psychodrama and group dynamics are the main simulation techniques that make up the selection process.

(3) Knowledge and Psychometric Tests

They objectively measure the knowledge of candidates for the future performance of the job to be covered and the success in their training, evaluating those aspects most important for the performance of their work. These tests are usually accepted well by the candidates, as they show great apparent validity. Studies on the predictive validity of these tests show that they serve to predict criteria, such as job performance or training success [20].

Psychometric testing focuses on individual capabilities. Capability, being innate, is a latent or potential skill in a person that can be developed through practice. Lotito [21] defines psychometric tests as experimental instruments that have a solid scientific basis and a broad statistical validity, for the purpose of measuring or evaluating the psychological profile of candidates for a vacant position in the company. There are three types of psychometric tests: Intelligence test, projective test, and capabilities and skills test. The test selected will depend on the vacant position that is being evaluated: It is necessary to make an in-depth analysis of the competencies required by the job.

(4) Personality Test

This technique is used to find out the main character traits of the interviewee and thus assess their adaptability to the job. Personality tests aim to measure significant behavioral traits in order to determine to what extent a person is suitable for a given job [22].

Alonso et al. [23] state that personality traits allow the prediction of various organizational criteria, such as future job performance, training success, job satisfaction, job turnover, counterproductive behavior, or career potential.

2.3. New Trends in E-Recruitment and Selection

The business environment is evolving, and companies must adapt to it in order to pursue success. These significant global changes are mainly driven by information and communication technologies (ICTs) and demographic, social and cultural changes as a consequence of globalization [24]. The current challenges and the intense changes in the age of digitalization have significantly influenced the management of the selection process [25]. Selection processes have evolved thanks to the use of computer resources for the evaluation of candidates, the use of the Internet in the different phases of the recruitment process, and the use of videoconferencing to conduct interviews [26].

The use of the Internet greatly changed the process of recruitment and selection of candidates. The use of online recruitment methods is now widespread among organizations, but it has not dominated the recruitment market in the way that was predicted by the mainstream media. This may be because organizations have experienced mixed results in using online methods of recruitment [27]. According to [28], past models for attracting and recruiting employees are now obsolete, since talent is not found in the same way as in previous years. E-recruitment and selection, incorporated by companies 2.0, is defined as the selection and hiring of employees through the Internet, which makes it possible to recruit, contact, evaluate, select, and carry out remote interviews with candidates to cover a vacant position [29].

Artificial intelligence deals with the understanding of intelligence and the design of intelligent machines, i.e., those that present characteristics associated with human understanding, such as reasoning, comprehension of spoken and written language, learning, or decision-making [30]. According to some authors, artificial intelligence allows for automation of the selection process and the management of a greater number of candidates, selecting them in a more objective and egalitarian way [31].

Gómez Mont [32] states that in today's globalized environment, where technologies make it possible for thousands of people to communicate, intelligent software will allow the company to understand the profile of a candidate located miles away, translated into computational operating principles. Some companies have already incorporated artificial intelligence techniques as a selection method.

In the view of [5], e-recruitment is a recruitment process that makes use of the Internet and is compatible with the traditional process. It is a process that allows anyone to attract, select, and process applications via the Internet, intended for both external and internal candidates, through an intranet [33].

With the advent of the Web 2.0, the processes of attracting and selecting talent in companies have evolved, and candidates and the company try to show the best of themselves by interacting effectively. Joos [34] considers that social media tools and techniques currently in use are not a direct replacement for traditional hiring processes but rather a supplement to them. Among the techniques most used by companies for e-recruitment are:

(1) Corporate Website

The corporate website of a company is a key tool, as it provides information to employees and future employees. In addition, the organization can dedicate a specific area within the corporate website to staff recruitment [35]. The number of companies that include a specific section for job offers or employment on their corporate website is increasing. This section announces vacancies and facilitates the submission of candidatures [36].

Online applications related to the contents of the job allow for the incorporation of virtual structured interviews, interest questionnaires, language tests, and self-assessment questionnaires of competencies. Andrés Reina [37] believes that the better the company's image, the more people will visit its website and, in short, it will be able to attract more active and passive candidates.

(2) Employment Portals

Job portals are websites that host offers and contain news, information about companies, links of interest, or advice. Their main objective is to connect employers and candidates [33]. This recruitment technique allows for greater diffusion of the needs of companies.

According to the classification made by [38], employment portals are structured in generic portals; employment websites not specialized in any sector, such as Infojobs, Infoempleo, Monster, or JobToday; and specialised portals, websites focused on specific sectors, such as Student Job, which offers work for students, or Finance Jobs, specialized in finance and business administration personnel.

(3) Video Curriculum

The video curriculum is a promotional video of the candidate, which has the advantage that companies can discover them in greater detail [39]. Candidate can record themselves while presenting their curriculum vitae so that they can show their abilities, talent, and other characteristics of their profile that are suitable for the job [40].

According to [39], a video curriculum should be structured in presentation, experience and work expectations, should not exceed three minutes, should use direct language, and should finish providing a telephone or email. The video curriculum should not replace the traditional curriculum but is considered a complementary tool. The key to making a good video curriculum is to keep it up to date and disseminate it through different platforms and social networks.

(4) Social Networks

The process by which companies search for and identify potential candidates to meet their internal employment needs through online social networks that are compatible or accessible from different technological platforms is called recruitment 3.0 [5]. Social networks are a means to this end because they allow an applicant to be known, and a source because they allow candidates to be attracted [41].

Mukiur [5] states that Web 3.0 technologies allow users to become more visible. People looking for a job should have a good online reputation, as their profiles can be consulted for recruitment. Both personal and professional social networks are included in the recruitment process, complementing each other. Both types of networks allow the candidate's potential for the job to be investigated and his or her more personal reality. Some of the social networks most commonly used to capture talent are LinkedIn, Xing, Twitter, Facebook, Hi5, or Dejaboo.

3. Methodology

This study raises the following research question: How can the potential of technological innovation be harnessed to gain access to valuable HR, regardless of location? To answer this question, we propose a model that integrates the management factors of e-recruitment and selection. Results were obtained through a case study of five years of research gathering information. The company under study is a leading company in the mechanical engineering sector and has a presence in all five continents through external development using mergers and acquisitions strategies. It currently employs more than 60,000 people and is active in more than 100 countries. Since its inception, the company has expanded geographically, developing new markets through international F/A operations, which makes it a company with enough experience to consider the results obtained valid and reliable.

Perry [42] argues that, within qualitative research, case studies help establish an in-depth understanding of a particular social phenomenon or problem. The use of case studies is especially relevant when the purpose is to understand, solve, or improve a procedure in the professional

world [43]. In this work, we used the case study methodology for three reasons: (1) The phenomenon investigated is exploratory and descriptive; (2) the literature is inconclusive and it is necessary to carry out an in-depth and qualitative analysis on the subject; and (3) there is primary information available thanks to the cooperation of the company, which has allowed interviews with people involved in the process and the stay of one of the researchers within the organization. The steps involved in the case study are shown in Table 2.

Table 2. Case study stages.

Semblance
Literature review protocol (WoS, Scopus)
Sample selection
Company mechanical engineering sector
Multinational in 100 countries and 60,000 HR
Company has expanded geographically
Analysis unit selection and identity
Four members of the board
More than 40 mid-level informants
Information gathering
Semi-structured interviews: 2016–2018 (HR board)
Open interviews: 2016–2018 (HR intermediate levels)
Internal documents and direct observation: 2013–2018
Theoretical saturation and Principle of triangulation
Information transcription
ATLAS.ti
Data registration and classification:
(1) internal documents, (2) interviews, (3) field notes, and (4) direct observation
Results and conclusions presentation
Conformity with the results of the analysis
Conclusions and literary and professional implications

Source: Own elaboration.

A five-year stay at the company, from 2013 to 2018, was completed. For the collection of evidence, interviews were conducted with the different informants, with the aim of promoting an open dialogue. We worked with two groups of people. On the one hand, four members of the management committee (HR director, director of operations, and director of communications and marketing). We conducted two semi-structured interviews with each of them. After transcribing the information, the results were reviewed by them to verify that the ideas expressed in writing were similar to the ideas expressed verbally during the interviews. On the other hand, we conducted 46 open interviews with people from different organizational levels and different departments and maintained informal contact with them during the five years. The diverse origin of the informants, both in terms of their position in the organizational structure and the department of origin, provides different perspectives that allow conclusions and relevant implications of the research to be obtained.

The transcription of the information achieved was carried out using ATLAS.ti, a software frequently used by researchers to deal with this kind of qualitative information. The number of interviews and informants was not specified at the beginning of the research, and it was decided that a strategy of "theoretical saturation" would be followed to determine it: Interviews were conducted until it was perceived that informants reported similar and consistent information to support the validity and quality of the theoretical model [44].

As a complement to the interviews, we participated in meetings, communication plans, or events organized by the company, which promoted the values of the organization in HR management, such as commitment, development, integrity, and trust.

To complete the principle of triangulation in the collection of information, we accessed internal documents. Different documents were consulted on the corporate intranet, in particular the handbook on the implementation of HR strategy 2013–2018 (manual de ejecución de la estrategia de HR 2013–2018) that was created and signed by the global human resources director of the group. Within the handbook, particular reference should be made to the motto "support our business by supporting our employees".

4. Case Study Results

After reviewing the existing literature on e-recruitment/e-selection and analyzing and corroborating their findings with primary information from a leading multinational company in the sector obtained after a five-year stay at the organization, this section proposes actions to manage success factors for a proper e-recruitment and selection of valuable and highly qualified personnel.

The human resources director explained: "*The changing context where organizations operate has become more competitive, complex, and unstable. In reaction to this, companies have had to adapt quickly. One of the most relevant changes is to understand that human capital is an inimitable asset and the success of an organization is greatly influenced by the capabilities of its HR. Currently, a good recruitment and selection strategy requires the use of an e-recruitment and selection process.*"

The director of operations added: "*In the current business environment it is necessary to develop an appropriate strategy to improve the competitiveness of the company and make it grow and be attractive for both clients and professionals. This implies the adoption of new measures and schemes adapted to the framework of the new technologies.*"

4.1. Creating Communities Through Social Networks

Blogs, wikis, and social networks are making companies more productive and communicative and their decision-making processes are becoming more agile and transparent [45]. Hernández Díaz, et al. [41] state that the most important beneficiaries of this project 2.0 are the companies that apply or seek to apply social networks in the areas of human talent management, and the actual and potential candidates that use social networks to place themselves in better jobs.

With regard to social networks, the director of communications and marketing explained: "*They are excellent allies in the recruitment and selection process of a company. They are a source of candidates where you can interact with them. The contents and employment profiles in the networks related to the profile we are looking for is key, thus generating interaction between the company and the candidates. The company must attract talent, not just look for it.*"

The HR director stated the following about the management of his area: "*The human resources department works as a team, gaining easier access to its future employees. It shows a company image that promotes technology, thus encouraging innovation. The development of a marketing referral by employees, who share job offers available on social networks, allows the company to get a wider dissemination and gives it an image of confidence.*"

The creation of a virtual community of the organization in social networks offers possibilities for businesses beyond those ones close to the firm, as explained by the director of operations: "*Virtual interaction allows companies to get a large amount of information and feedback from different audiences. This possibility of interaction and selection of information of interest gives rise to an effective and immediate space. This new scheme of web pages 2.0 has allowed the consumer to become the protagonist on the network.*"

Therefore, we can make the following first proposal:

P1: Creating communities through social networks will stimulate the interest of talented people to work in the company.

4.2. Build an Employer Branding Strategy

Employer branding is defined as a long-term strategy aimed at managing the knowledge and perceptions of employees, both actual and potential, about a company [31]. In other words, employer branding is the image that a company has as an employer [46].

Early recruitment-related activities were indirectly related to intentions and decisions through two dimensions of the employer brand image: General attitudes towards the company and perceived job attributes. The relationships between word-of-mouth endorsements and the two dimensions of brand image were particularly strong [47].

According to the director of communications and marketing: *"This strategy builds a differentiated and competitive value proposition, creating a solid image of the company as an employer. Candidates, both internal and external, will perceive the company as an attractive environment to work in and exercise their knowledge and skills. The expected objectives of employer branding are its contribution to the recruitment, motivation, retention and reputation of the company."*

So, having a solid employer brand makes the company attractive for valuable human resources, wherever they can be located. The HR director stated that: *"It increases the quantity and quality of applicants, reduces the turnover rate among the best HR and increases the productivity of the workforce."*

The director of operations emphasized the importance of the following factors to achieve the expected results: *"It is key that leaders promote and publicize the company. This practice increases confidence in the organization through public recognition. The company should have an active presence in journals and institutions that encourage high-quality work, and dissemination through relatives and friends increases the interest rate in the company of valuable HR."*

P2: Employer branding will stimulate the interest of talented people to work in the company, helping to attract the best human resources.

4.3. Automate Tasks with Online Tools

Many companies try to optimize their personnel selection processes using different tools and managing their selection processes in an organized, dynamic, and agile way. A considerable number of tools have been developed to facilitate and automate the management of software projects [48].

The development of big data and HR analytics helps make decisions and manage HR in a much more objective, methodical, and rigorous way [49].

The director of communications and marketing commented on the usefulness of these tools: *"In large companies we have access to a large amount of data, but we need to master tools that allow us to analyse them and extract information that helps us generate reports, predictions and make decisions. Using big data we achieve one of the most complex tasks that is to filter data to determine which are valid and reliable for obtaining valuable HR."*

The director of operations explained a tool that is used specifically in his area: *"HR analytics is a methodology that makes it possible to quantify the relevant factors for personnel management. It classifies important data to create predictive and statistical models that are the basis for making sound decisions. The tools are very effective if the HRs in charge of using them are qualified and trained."*

The director of operations also explained how to take advantage of these tools: *"All large companies have access to these tools, but the company that makes the most of their potential and advantages will have more options to differentiate itself from its competitors. The automation of processes represents a saving of economic costs and time in the recruitment and selection process, thus improving it. Automating the process through online tools makes it possible that job offers reach candidates faster and cheaper than using traditional means. In addition, the different programs used automatically filter candidates who do not meet the qualities of the vacant position."*

P3: Big data and HR analytics will facilitate the detection and selection of talent, giving access to the best human resources available.

4.4. Talent Management

One of the biggest challenges faced by companies around the world is building a new recruitment and selection strategy while maintaining a strong talent portfolio [50]. Businesses need to create new capabilities and revitalize their organizations. To do this, they must recruit and select talented people, develop their potential, manage their performance, and, above all, try to retain the best. Leaders' personal attributes influence the choices and the decisions they make in the organization [51]. Stahl et al. [52] present the talent management wheel, indicating four basic principles of effective global talent management:

1. Alignment with the Strategy

The director of operations explained that: "*The corporate strategy is the starting point for talent management. In this case, strategic flexibility is important, and companies must be able to adapt to the changing conditions of business 2.0, while renewing their approach to talent. Each HR, depending on the stage of his career and his personal situation, has specific needs that we must be able to detect and manage in order to retain the best HR in the organization. But any strategy, no matter how well designed, is doomed to failure if it is not effectively implemented by the HRs charged with implementing it.*"

2. Cultural Integration

With regard to the importance of organizational culture, the HR director stated that: "*Today, many successful companies consider their corporate culture as a source of sustainable competitive advantage. We have expanded our selection criteria to include the cultural adjustment through the personality test, assessing candidates' personalities and values to determine if they are compatible with the corporate culture. The acquisition of cultural integration is a strategic resource to generate value and increase opportunities for growth and development of the 2.0 business system.*"

3. Staff Involvement

According to the human resources director: "*Successful companies know that in the process of talent management there must be a broad participation of all human resources staff. Key leaders must actively participate in the talent management process and make hiring, succession planning, leadership development and retention of key employees their priorities.*"

The director of communications and marketing spoke about the changes: "*With the arrival of the new technologies, communication between the company and the client is active and multidirectional. Communication with candidates and their commitment the job is necessary throughout the selection process, allowing companies to involve them in their decisions. Human capital is managed through innovative and motivating policies, where their participation is constantly present.*"

4. Global and Local Needs

The director of operations said: "*Many companies are moving towards greater integration and global standards and at the same time they are experiencing the need to adapt and make decisions at the local level. The great challenge for today's companies is to be global and local at the same time. In our process of achieving world leadership in 2020 we have entered many countries through mergers with companies consolidated at local level. In order to smooth the transition process and the initial shock, many of the team leaders come from the subsidiary companies, since they know the stakeholders and customs.*"

P4: Talent management will facilitate the retention of talent in the company, eliminating the effects of local cultures or isolation of teams.

4.5. Networking

Networking is defined as those web 2.0 services that allow the building of a public or semi-public profile within a limited system and creation of a network of contacts to establish connections in different degrees [53]. According to [54], the use of networking in the recruitment phase is a successful business strategy, as it boosts the image of the company while facilitating follow-ups and produces a unifying effect on users.

The director of communications and marketing explained that: "*Online recruitment offers the candidate the possibility to make much more of the information that he can provide to the company and to contact numerous professionals from what is known as networking. The user exchanges and shares content with other users, thus eliminating all geographical and time barriers. We can access talent from anywhere in the world.*"

The human resources director stated: "*We have evolved from being passive subjects who limit themselves to publishing a job offer to developing an active search for talent on the web and creating spaces for networking with professionals. In this way, thanks to networking, it is possible to reach a wider public and speed up the hiring process. It becomes a more automated and accurate process for the selection of the person that best fits the profile.*"

P5: Networking will remove barriers to access the world's best talents.

After reviewing the existing literature and considering the information gathered in the qualitative study, the work offers a theoretical model of HR e-recruitment and selection to attract valuable human resources, integrating the previous theoretical contributions of experts in the field and the propositions reached. Figure 1 shows several key management factors during the e-recruitment and selection process.
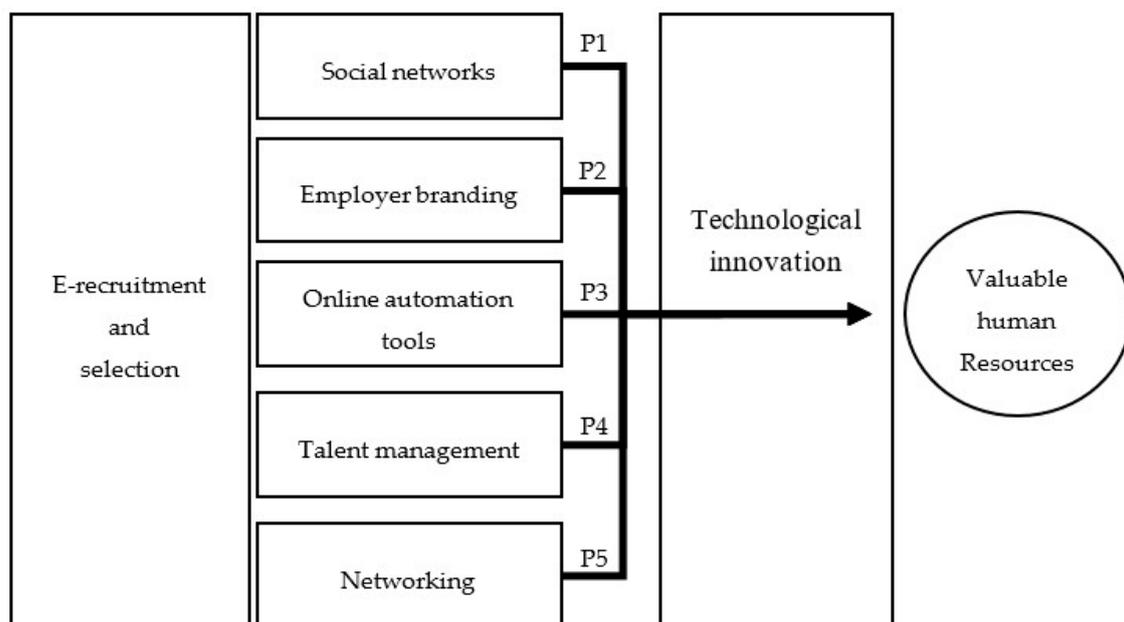

Figure 1. Determining factors for successful e-recruitment and selection. Source: Own elaboration.

5. Discussion

This study, regarding how to effectively manage HR, focuses on the opportunities presented by technological innovations to attract valuable human resources. To do so, a literature review is carried out to identify the most relevant factors in HRM management, which are contrasted in a case study. According to [55], "it is essential to measure HRM outcomes to understand how HRM impacts on performance." In that sense, his model identifies six steps: (1) HRM strategy; (2) HRM practices; (3) HRM outcomes (commitment, quality, and flexibility); (4) behavior outcomes (motivation, cooperation, involvement, and organizational citizenship); (5) performance outcomes (high productivity, quality and innovation; low absence, labor turnover, conflict, customer complaints, and labor turnover); and (6) financial outcomes (profits and return in investment).

Due to the relative lack of previous specific studies measuring the outcomes of HR management in attracting valuable human resources, we used Guest's (1997) model to discuss the findings of this case study. This methodology allows us to obtain evidence about steps 1–4 of the aforementioned

model. So, we identified the HR management practices—steps 1 and 2 (Table 3). Additionally, HR management results and behavior are presented—steps 3 and 4 (Table 3).

Table 3. Propositions, human resources practices, and HR management results and behavior.

How can the Potential of Technological Innovation be Harnessed to Access Valuable HR, Regardless of Geographical Location?		
Propositions	**HR Practices**	**Management Results and Behavior**
P$_1$: Social networks	Virtual interaction Technological innovation Dissemination and trust	Attract talent Referral marketing Feedback
P$_2$: Employer Branding	Company publicity Public recognition Internal and external candidates	Solid image Motivation Reputation
P$_3$: Online tools	Datamining Big data HR Analytics	Filtering and decision Cost and time saving Predictive and statistical
P$_4$: Talent Management	Cultural integration Participation and succession Global and local adaptation	Personality and values Multi-direction messages Reduce transition shock
P$_5$: Networking	Online contacts Access to talent Automation	Reduce geographical barrier Wide public Desired profile

Source: own elaboration.

Along with the reflections made by the top managers of the company, our study also included 46 open interviews with people from different organizational levels and different departments, along with informal contact with them during the five years. Their words and experiences support the propositions previously presented.

This way, focusing on P1 about the role of social networks, the employees stressed for instance the daily activity of the company on LinkedIn, trying to catch up with the best talent available ("*we elevate . . . talent. Create your future in the Company. Contact me!*"), as well as aligning the values of the company with those of society ("*Today is World Mental Health Day. At the Company, we commit with the safety and health of those who work for us. Nevertheless, you never know what kind of business-related stress or personal problems may lead to physical and mental health issues of your peers. Therefore, dare to talk and dare to ask- at work as well as in your private life*"). This kind of message not only empowers the current workers of a firm but attracts potential candidates to join a company with such values.

P2 stresses the relevance of working on employer branding through new technologies. The employees did not hide their pride of belonging to a firm, which has been recognized with the Top Employer Award seven years in a row: "*All of us here know that the Company is a great place to work and we are always thinking of new ways to share our enthusiasm with current and future employees.*"

About P3, which deals with the role of big data and HR analytics in the detection and selection of talent, the employees have not had personal experience with these technologies in HR selection processes, but remark on their relevance in some pilot tests of other aspects in the firm: "*A critical tool for the future will be digital twins. A digital virtual twin is a data set that contains a digital replica of a physical product. It´s an important milestone in our digital transformation journey that´s not just transforming our products and services, but our culture as well.*"

The role of technologies in talent management, eliminating the effects of local cultures, was analyzed by P4. The employees particularly enjoyed the joint campaigns, and the integration with managers and workers from different countries through an innovative video production system, which created a vivid sensation of being together at the same place: "*Colleagues from around the globe took part*

in the International Employer Experience Day. It was a great opportunity to discuss what it means to provide a great employee service. Managers from USA, Vietnam, Brazil, Turkey, Spain, Mexico, France, Singapore, Saudi Arabia, Philippines, and Myanmar showed some impressions." They also stated that, *"transforming for future success is not just being digital; it´s all about empowering the right people with the right mindset to create a corporate culture that enables the company to grow and adapt."*

Finally, dealing with P5, about the potential of networking to remove barriers to access the world's best talents, the employees stressed the diversity of the crew and the new talents hired by the firm. They felt especially proud of some campaigns: *"Though partnering with governments around the world, we are running more than 30 programs to help young people start their career in the best possible way. We´re more certain than ever about the importance of vocational education in the lives of young people everywhere."*

6. Conclusions

The current business scenario is characterized by continuous change. Companies must adapt to it, and HR, as a strategic factor in organizations, must be the first to accept this change. Given the intense competition in the business world, companies struggle to achieve and maintain a competitive advantage that sets them apart from their competitors.

The introduction of the Internet and social networks in the recruitment process allows for wide dissemination and makes it possible for companies to be in contact with valuable HR from anywhere in the world, and thus be able to retain and attract the best talent.

Companies demand new talents. Both society and companies have new needs, and this is reflected in the recruitment process of an organization. Digital platforms are present in all aspects of life, their knowledge and application being a fundamental requirement. The change brought about by the Internet in HR departments has led to changes in the qualities and attributes that companies requires of applicants. The knowledge and integration of technologies by the employee is essential for the development of his or her work, and it is necessary to attract new workers with these new skills and knowledge.

E-recruitment and selection is the process of selecting personnel through the new digital platforms and the Internet. This new form of selection introduced by the HR department makes it possible to unify the advantages of the traditional method with the solid contributions provided by this e-recruitment and selection process. In order to determine the key factors in the management of e-recruitment and selection, the contribution of the work to the literature is based on proposing a management model of e-recruitment and selection capable of attracting valuable HR from anywhere in the world. This management model is made up of five main factors: Creation of a social network community, development of an employer branding strategy, automation of tasks with online tools, use of talent management, and use of networking.

Two types of contributions are derived from our paper. For the scientific community, the work offers a model of HR management to attract valuable human resources, integrating the previous theoretical contributions of experts in the field and corroborating their research with primary information from a leading multinational company in the sector.

A second kind of contribution is the insight gained for practitioners that can be derived from this study. A roadmap that can be used as a reference for the executives involved in HR management processes was developed. Thus, each executive can use this roadmap to determine the factors that must be considered to manage the HR of a firm and the practices that can be performed to successfully attract valuable human resources, no matter where they may be located. Any manager involved in this process can consult in Table 3 the research propositions, the key HR practices to obtain the expected results, and the results and behavior that can be obtained.

Automation, optimization, and the use of digital tools are the foundations on which e-recruitment and selection is based. This new method involves changes in HR that need to be adopted in order to ensure that it is properly used by the members of the organization. This paper helped recognize and identify the most important aspects of HR e-recruitment and selection. In addition, it performed an

analysis and grouping of the key factors to ensure successful e-recruitment and selection of valuable HR through the information and results obtained through the five-year case study carried out in a leading company in the mechanical engineering sector.

The creation of communities in social networks is essential for a company to have a high visibility. A solid presence in the different digital platforms, creating profiles in those that bring greater prestige and make the organization known, and that are associated with the sector where the company operates, will allow it to achieve a diffusion capable of reaching anywhere in the world. In addition, the development of a referral program will reinforce this dissemination, and even increase it.

A good employer branding strategy, characterized by a differentiated and competitive value proposition, will allow the company to build an attractive image, both for current employees and for potential candidates. They will perceive the company as a top player, for the image it projects to different stakeholders. The achievement of the expected results in the management of this strategy will result in the attraction of the best talent. In addition, once they are members of the organization, they will also exert an influence on talent retention, creating an important sense of belonging to the company.

With the introduction of the Internet and the social networks in the personnel selection process, the scope is much greater, which forces us to manage a more complex process. The existence of online digital tools capable of automating this process makes it possible to considerably shorten the time needed to develop it, thus saving time and costs. From the beginning of the recruitment and selection processes to their completion, there are tools that automate the process and make it easier.

The introduction of e-recruitment and selection in the HR department makes it necessary to have an adequate talent management process that improves the incorporation of valuable human resources. The company should develop tactics that lead to an effective global management of talent and to maximize the value of the human factor achieving higher yields. These actions, which result in the best talent portfolio, need continuous communication so that workers are in constant contact and knowledge.

The development of contact networks through networking facilitates communication between users and makes it possible to eliminate the traditional barriers of place and time. Thanks to the increased network of professional contacts, companies will be able to expand the possibilities of professional and business growth, knowing in greater detail the potential candidates, their concerns, motivations, and needs.

Once the model has been created to develop an appropriate recruitment and selection strategy 2.0, it is necessary that the entire human resource team collaborates and provides the necessary knowledge for its correct implementation. It is also necessary that the five factors that make up the model interact and coordinate to achieve successful management of the e-recruitment and selection process.

A first future line of research would be to analyze the use of these new digital platforms in the human resource selection process with quantitative data. Secondly, it would be possible to assess the differences between companies from different countries or continents as regards the way in which they use the Internet and social networks in their selection process. Another future line of research is to analyze the performance and financial outcomes of the HR management (steps 5 and 6) of the model proposed by Guest (1997). Finally, we identified limitations in the research of artificial intelligence applied to human resources, since there is little literature studying this factor. This lack of information makes it a possible relevant area for future research, in order to increase knowledge and foundations about this field.

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