

Human Resource Management and Industry 4.0

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Abstract

The world of human resources is constantly changing, network communication between humans and robots, self-control, virtual processes and production, dynamics and efficiency, all these are no longer a dream of the future, but found in our everyday life. The future promises to be digital, more flexible and less predictable.

Given this structural change in the labor market, a rapidly changing professional world and the rapid progress of digitization, HR management must also react and adapt its work to the new Industry 4.0.

The purpose of this article is to highlight what challenges the HR department faces in the course of digitization and therefore Industry 4.0.

Industry 4.0 is our future and is related to so-called cyber-physical systems, the Internet of Things, chatbots, smart factories, cloud computing, artificial intelligence and much more.

Key words: human resource management, industry 4.0, IoT, technology

J.E.L. classification: M12, M54, O32

1. Introduction

Our economy is in the midst of a revolution. The four megatrends mobile, social, cloud and analytics take digitization to a new level. And as people and machines connect, the generation is moving into a legacy job market, knowing nothing but the life of being part of the web. At the same time, job descriptions are becoming more demanding and complex, and employees are constantly being asked to acquire new skills. How will HR react to these changes? And how can HR look effective in Industry 4.0? In this article, we examine the changes resulting from HR 4.0, also in relation to Industry 4.0 and leadership.

Many are currently talking about the fourth industrial revolution, and experts are already using the term Industry 4.0. Which means that we are in a continuous ascent in terms of the degree of growth of digital networks and the fusion of people, intelligent machines and means of production. This will completely transform the future of human resources, bringing new business models and new types of collaboration. Along with this, work organization and corporate strategies will also change.

Anyone who embraces digitization is already one of the winners in today's market, because digitization megatrends hold a lot of potential. The path to Industry 4.0 has been almost linear compared to today's upheavals.

It moved from the steam engine to the introduction of modern production systems, to electricity and the possibility of mass production, to the use of computer systems and robots that automated parts of production and made it easier. This path has always been focused on organized companies offering standardized products. The organization of companies was characterized by steep hierarchies, by specifications and by controls, and the employee was checked to see if he fulfilled the duties of the position he held.

Staff work in Industry 4.0 is about connecting technology, data analysis, agile and digital staff planning and management. During the digitization of human resources, employees can be digitally mapped and processes can be automated and optimized, for example in the areas of personnel

organization, performance management, recruitment or electronic payroll accounting. Employer branding also plays an important role in the Industry 4.0 era.

Many of the necessary tools and technologies are already available to HR professionals, so many manual HR tasks can already be replaced today. This saves a lot of time for HR, and with the help of new digital tools, they can focus more on the essentials instead of dealing with manual, bureaucratic or repetitive tasks. Thus, automating and optimizing HR processes can improve not only the performance of the department, but also the overall performance of the company.

The demands on HR managers are higher than ever, because digitization brings with it a large number of changes and a certain technical know-how, which the staff must acquire first. As for HR managers, they must be especially well prepared, now and in the future, because it is the only way to step into the digital labor market of Industry 4.0.

The first step to successfully digitizing HR is also to get an overview of time-consuming repetitive processes, automate them and standardize them with the new electronic tools available.

The use of digital technologies and tools already facilitates the entire application process for many recruiters and headhunters. Recruiting software can also be used as an interface between the HR department and the managers in charge, thus facilitating internal communication during the application process. Digital software solutions can help HR professionals create an organizational framework for performance management.

It is important for companies to give HR departments the opportunity to shape the labor market themselves in line with Industry 4.0, which may also mean that company structures need to be fundamentally revised. This can lead to skepticism and uncertainty not only among managers but also among other employees.

Therefore, it is the task of HR management to support employees and managers in this process, but above all, it is their task to set an example for them in digitization. The role of the HR department is also to train and sensitize managers and employees to new tasks and technologies. Coaching and workshops offered by human resource management can help. An Industry 4.0 implementation strategy must also be compatible with overall corporate goals and approved by management. Each individual must be included and enabled in the implementation.

2. Literature review

“The very name of organizational change does not offer a varied palette of descriptions on this subject, thus, by comparing the operational and the organizational change, we can see that the former refers exclusively to individuals, their roles and values, while the one the latter covers a much broader field, namely all operational processes: customer service, production and logistics.” (Stegăroiu et al, 2020, p. 241).

The systematic use of specialized literature reflects the current state of research on the concept of Industry 4.0, to determine the possible effects on human resources and the role of human resource management, and to show the corresponding fields of action and design options for overcoming the challenges generated by digitalization.

The theoretical foundations of Industry 4.0 in general are elaborated by describing the most important components, requirements, objectives and risks for the company. Based on the literature review, the labor market and personnel management consequences are then identified and transferred to the relevant action areas. Digitization not only changes the possibilities within companies' production processes, but also offers HR departments new optimization possibilities.

“Organizations compete for their key resources including knowledge which is rare, valuable and hard to imitate and, which becomes a strategic resource when it comes to get competitive advantage.” (Croitoru et al, 2012, p. 237)

Industry 4.0 is the new era of the Human Resources sector, based on the application of technologies and software to improve its processes. This industry indicates a change in mindset, making processes more strategic as well as focused on optimizing people management and their role in the business.

Change is inevitable and affects all sectors, but like previous revolutions, it does not happen overnight.

The technological revolution in the Human Resources sector applies advanced technology to personnel management, through recruitment and selection, attracting new talent with the help of Industry 4.0. This means that most HR functions will become automated, while new, more strategic functions will be created to attract and retain talent. A technological Human Resources sector is a response to the changes that are occurring, because for a long time HR was seen as a bureaucratic and backward sector, out of step with the rest of the company.

To change this scenario, new technologies are being inserted into the sector to evolve it. But what still causes confusion on this topic is the application of technology in everyday life. Many think that HR in Industry 4.0 is futuristic, almost like a science fiction movie, but the technology is more realistic than it seems.

Instead of robots and holographic screens, we will have an end-to-end integrated software sector with big data generation and analysis, strategic and operational. What Industry 4.0 brings is the possibility to work creatively, in a more strategic and human way.

The impact of the industrial revolution on human resources

“Industrie 4.0 (I40), i.e. the implementation of cyber-physical systems along the entire value chain and a far reaching digitalization of products and processes, is regarded as a significant agent of change in our current industrial system.” (Burmeister et al, 2016, p. 124).

It is impossible to explain Industry 4.0 without first contextualizing the revolutions that preceded and are responsible for its emergence. First, of course, the industrial revolution.

The first revolution happened a long time ago, with oil and steam powered machines replacing artisanal processes. The second revolution, brought about by electricity, could be used to build airplanes, refrigerators, and telephones. In the same period, the Human Resources sector was created. The third industrial revolution took place through technology as we know it today - and it is the closest to our generation, since the 20th century, smartphones, smart TVs and especially computers have been responsible for accelerating and popularizing knowledge generation, with billions of people connected.

This is the new industry we are facing, responsible for improving processes, streamlining communication, eliminating manual work and generating gains in efficiency and productivity. Even if this revolution is shaped by technology, it does not mean that the human being will be completely replaced. Many functions will be redefined and improved according to the needs of the new reality.

Adopting it is no longer a choice, especially for HR, this new way of acting and thinking based on technology brings countless innovations.

The challenges of HR 4.0: technology, data and the mental model

Idealizing this new industry is the easy part. But a sea of challenges separates traditional HR from its new version, and this goes far beyond the sector itself. The technological revolution will have to deal with the processing and protection of a huge amount of data.

Among the main human resources challenges in Industry 4.0 is the HR mindset. This has strong roots in a bureaucratic reality. Before any change can take place, it is necessary for all participants, in the HR sector, to change their mental model to something new, which thinks, focusing on innovation and digital transformation. There is still the fight against resistance from many who believe that change is not necessary and that technology and innovation should not be a priority. This means that the first step towards change is creating a mental model based on innovation.

All advances in any science are made through study and research. But that requires investment in technology and the team required for scientific development. In HR, progress tends to take small steps due to a lack of investment. Thus, another challenge for the new industry in the sector is the lack of studies on this topic.

To get to the future that is being designed now, a lot of effort needs to be invested in tests and technologies in all sectors. It also includes investing in leadership and team development. In Industry 4.0, soft skills will be a priority. It is more than necessary to encourage and invest in knowledge about digital transformation, communication, business and trends in HR.

The human resources market still lacks advanced software with the possibility of integration that, in the future, will satisfy all the needs of the sector. It is necessary to invest today in technologies that already use artificial intelligence in HR and have the potential to develop a tool towards industry 4.0.

HR in the era of Industry 4.0 is becoming indispensable in the strategic direction of a business, in the development of people, their skills and in redefining what work is. The human resources sector becomes a reference, making strategic decisions and directing actions that value management. No more paperwork, forms and manual actions. The main difference between these two versions of the industry is that of being strategic.

Innovating is not necessarily creating something from scratch, but reinventing something that exists, giving it new features, and understanding how to work in different ways with the available tools. In this way, the ability to innovate in HR - something that is still rare today - will become a necessary skill. New functions will be created, talent retention and attraction strategies will be reinvented by HR, and many other roles as we know them will be reshaped according to market needs.

People Management is currently not known for its use and generation of data. But with the desired technology of Industry 4.0, HR will be able to collect, analyze and transform a large amount of data into valuable information. Thus, being able to know employee behavior patterns, identify employees prone to firing, and better understand what actions can be taken to improve the employee experience. The possibilities of data generation in human resource management are endless.

One of the biggest HR challenges today is operational work. Among the sectors of a company, the HR department is the most difficult to adopt digital transformation. Therefore, what will change with the technology provided by Industry 4.0 is the reduction of red tape. With fewer manual and repetitive tasks, HR will be able to focus on what matters, people. In this way, more active work will be done on the company's strategy in pursuit of results and objectives.

How to implement Industry 4.0

Even before you think about hiring new tools, some actions help direct human resources towards Industry 4.0. After all, the future will also depend on human resource management, leadership and shared learning.

Industry 4.0 will not only require technological knowledge, but also knowledge of empathy and leadership, therefore, the development of leadership with a focus on the transformation of the digital era. Leaders are no longer administrators, they now bear responsibility for the company's culture and purpose. The leader is a coach who helps his team to build and develop. As the importance of organizational culture grows, leaders increasingly become ambassadors, and to drive the field toward the company's purpose and ambition, management will need to hire and train the team and seek to fill experience and diversity gaps. HR will no longer be the sector that only hires, but a fundamental part in the development and growth of the business, based on culture, purpose and values.

Companies that create a diverse and people-focused environment that care about employee well-being and develop a unique experience tend to have high-performing teams and better financial results.

3. Research methodology

Due to the ever-increasing influx of information, triggered by the growing number of authors and publications, the literary landscape is becoming more and more extensive and complex, which makes the processing of scientific papers more difficult and requires a greater amount of work. Therefore, it is necessary to give special priority to the search and evaluation of the relevant literature. In order to save time and identify usable sources, a systematic approach is necessary in the context of this paper.

Systematics means a planned approach to searching, evaluating and managing the relevant literature that has been collected to meet the requirements required for a scientific paper. The main sources of information are scientific writings in the form of books, journals, papers, conference papers, etc. and form the main source of this article.

Following the systematic approach of literature research, it is not possible to find all publications that are relevant or interesting for this paper. This is partly because new journal articles, papers or reports have not yet been electronically registered, published in reputable journals, or do not contain all relevant keywords due to their timeliness. For this reason, the literature search was carried out using a systematic keyword search that was added to the bibliography of the article.

4. Findings

This study aimed to understand the role of HR professionals in Industry 4.0. In particular, to provide an analysis of the skills needed by the HR manager to generate opportunities and manage them better with the challenges of Industry 4.0.

“Entrepreneurs and managers need to be aware that the path toward I4.0 requires not only focusing on the application of the I4.0 technologies, but also on the development of a series of organizational and managerial practices that become key to face the fourth Industrial Revolution.” (Agostini et al, 2019, p.406).

The study demonstrates how the human resources management function has assumed an increasingly strategic role in the organization. In fact, along with Industry 4.0, the role of HR professionals is changing and they are becoming strategic partners of the organization. Such changes will require retraining and improvement actions. This will require not only the acquisition of new technical skills, but also the ability to cope with continuous and rapid change.

For this, flexibility, the ability to govern one's own emotional states and human relations will become the determining factor of success for HR. Moreover, in the era of Industry 4.0 the centrality of the human factor and teamwork focuses more and more on soft skills, being the indispensable skills for managing interpersonal relationships and being able to create a successful team.

The technical skills of the HR manager related to selection, recruitment and training are always the same, the skill lies in knowing how to transcribe these activities in digital format. Hence the need to develop digital technical skills that allow the human resources manager to support his own collaborators. However, the real ability of the HR manager will be to adopt a winning combination of skills, which bear fruit in the effective introduction of change.

Industry 4.0 has an increasingly profound impact on the lives of business people. The rapid progress of increasingly intelligent and ubiquitous digital systems is irreversibly changing every aspect of organizational life. The fourth industrial revolution involves, in fact, two generations within companies that change organizational and strategic solutions, modify operating procedures and the capabilities of the workforce are revised.

In most cases workers will have to renew their skills and transform them radically. In this scenario, the HR manager, as a change agent, will have to update his guidance, change and support skills for his collaborators by adopting new working methods. The analysis of specialized literature demonstrated that the need to update the HR manager's skills is evident in the light of new technologies related to Industry 4.0.

The human resources manager finds himself facing a more demanding future, in which the skills he possesses are no longer sufficient. For this reason the HR manager will have to develop skills such as information processing, digital content creation, communication and collaboration skills through the use of digital technologies, etc.

In addition, human resources should be the first to know the digital world, and all collaborators should have the necessary skills for the new organizations.

HR managers will also need to support employees to have recognized skills related to the use of new technologies. All this cannot happen without the development and strengthening of transversal skills which are the fulcrum of the fourth industrial revolution.

As repeatedly pointed out, in fact, Industry 4.0 focuses as much on technology as it does on people. Consequently, to be able to relate to others by creating positive and trusting relationships, to carry out research with intuition, ingenuity and creativity, to develop the ability to learn, to act as a guide and to know how to collaborate, all these are inherent qualities of people from the human resources department that will be increasingly necessary for the HR manager in Industry 4.0.

We can say that HR in the digital age must possess skills that we are used to consider almost incompatible: the technological component on the one hand and the humanities on the other. On closer inspection, however, the two categories are not so far apart and blend easily.

Real HR capability will be the most correct combination of technical skills and personal characteristics. In today's digitized context, more participation is needed and it is not just about doing recruitment work, it must increasingly provide a personal contribution in terms of values, originality and innovation.

“Relationship Technology will become the new key element for the use of information and customer knowledge, which shows the importance of relationships between organizations and customers.” (Radu, 2020, p. 395).

5. Conclusions

If the future is technological, we can begin to adapt to the new technological reality by inserting innovative tools. Implementation of software that integrates processes and is in the cloud. Analyzing how the candidate experience can be improved, but also how recruiters' roles in the company can be improved.

Implementing recruitment and selection software in the recruitment process with the help of IoT to eliminate manual and time-consuming processes in the sorting and selection of CVs, which reduces the time used and enables the development of a more strategic sector.

Investing in tools that already use Industry 4.0 technologies, such as artificial intelligence, is a good way to innovate and take a big step into the future.

We have a long way to go to implement Industry 4.0, but the future is created from the actions taken today. Therefore, we must act in the Industry 4.0 enterprise with the innovative tools available on the market and with strategies focused on the management and experience of human resources.

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