

## **THE IMPACT OF TECHNOLOGICAL CHANGES ON HUMAN RESOURCE MANAGEMENT**

**Elena Sabina Hodor**

**PhD**

*Abstract: In the current economic environment, the technological innovations have direct influences on the business markets, suppliers, distributors, competitors and customers. In most of the cases, adopting technology contributes to the strengthening of the competitive position of the organizations. There is also an indirect influence that propagates in the company's internal environment. This can lead to changes in the implementation of the production processes, marketing practices, human resource management, even in general management actions. Nowadays, employees are working fulltime in computerized production systems, which requires a different type of human resource management than had in the past the civil operators from the industrial market. The emergence of the new call centers for customers and teleworking (working away from the computer, connected to the network), are involving changes in the structure of the labor market and require new skills to the employees. This paper aims are to clusterizeze the main types of technologies that influence human resources development, and analyze both, the causes and the consequences after the introduction of various technologies in the staff duties.*

*Keywords: technology, human resources, total rewards, knowledge, work conditions.*

*JEL Classification: M54, O15, O32.*

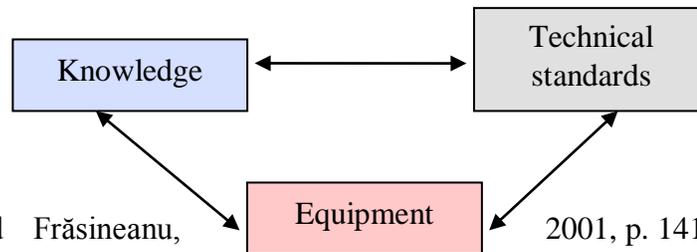
### **INTRODUCTION**

In general, technology includes tools, machinery, equipment, procedures and know-how. The technological advances may develop new markets, or change the relative positions of firms in industries. Thus, as a consequence, the obtaining of products and services can be made more effective. The latest technological advances are in computers, lasers, robots, satellite networks, fiber optics, biometrics, cloning, and so on. These and

other related fields have improved the direction for significant operational improvements in the workforce.

Technology it is an aggregate of equipment, rules (technical rules) and knowledge, used to design a certain product, taking into account the profit obtained per product. Generally speaking, technology consists in three elements with equal value, as it follows:

Figure 1: The relationship between the defining elements of technology



Source: Băloiu and Frăsineanu, 2001, p. 141.

*Equipments* are mechanisms which allow to process the raw materials in order to obtain the final products;

*Technical standards* are rules to be followed in the operations of producing the products expected in given conditions. Know-how it is a key component which connects all these rules;

*Knowledge* brings theoretical background and is underlying the transformations that can appear in the production process.

As can be seen, technology it is one of the internal factors within an organization. This it means that only the company can act on it (can adapt it, fully or partially replace it). Regarding human resource management analysis and considering the influences of new and different technologies, we are taking into account not only the production technologies, but also all the new technologies that can influence human resources, including the external environment. Of course, the diversity will be closely linked to the specificity of the company considered: a services organization usually works with information and communications technology (software, computer programs, etc.), for a butcher it will be analyzed human resource management taking into account the machines used (for the preparation of meat, for slicing products, and so on).

## THE MAIN TYPES OF TECHNOLOGIES

Technologies can be classified into the following main technological groups:

*Communications technologies (e.g. phone central);*

*Technologies for managing production (e.g. scanners in supermarkets, forklifts, etc.);*

*Information technologies (e.g. software);*

*Production technologies (e.g. presses to produce sunflower oil, juice bottling machines, etc.).*

The essential characteristics of technology are (Băloiu and Frășineanu, 2001, p. 16):

Are used combined in most cases (e.g. to produce juice carbonated we need machines for washing fruits and separation of the shells of the pulp and juice, the filtration of the slurry obtained, pasteurization and filling; all are combined with specific know-how and knowledge that must be applied);

Are complex and costly (new technologies for engaging in activities of a firm requires highly skilled personnel for proper handling and effectively);

Are expansive (a new technology introduced on the market will generate even more successful emergence of others);

Are providing high value added (relying more on intelligence and less on matter and energy);

Are transversal (a technology can be used in several areas, totally different; e.g. a laser can be used in medicine-as a bistoury, in clothing industry-where it is useful in tailoring, in mechanics -where it is needed to process materials, and also ininformatics-where it proves its usefulness in reading CDs;

Are contagious (easily to be transferred from a domain to another).

The recourse to new technologies it is conditioned first of all by economic reasons (profit and competitiveness), the analysis of the financial status being indispensable and complementary for the discussions about the technological factors.

Technological progress remains one of the main drivers for the competitive companies. Actually, it is used in order to increase the competitiveness. Therefore, the economic literature has emerged the concept of "technological vigil" (Băloiu and Frăsineanu, 2001, p. 403), which it means an organized activity composed from searching and structuring information needed to develop a company. This organization keep pace with trends in new technologies, in an environment that it is continually changing.

Depending on the way the company will choose to acquire, develop and then use technology, it will be observed the organization's technology strategy. This strategy will answer to three important questions: "What technologies will adopt and use the company?", "How technologically advanced it should be?", "What percent should have new technologies from total technology?".

## **CAUSES AND CONSEQUENCES OF USING TECHNOLOGY ON HUMAN RESOURCES**

Armstrong (2009) includes technology in the contextual factors group that influence human resources policies and practices, along with competitive pressures and adverse effects on organization's employees. The author explains that the introduction of new technologies can lead to the need for new professional skills and new ways of working processes-which cand involve an extension of the qualified employees (including multi-skilled people) or a reduction of qualification simultaneously with the reduction of the jobs (restructuring the activity).

Technological change can influence (Sărătean, p. 45):

The jobs;

The nature of the work;

The working conditions.

It is possible that a technological change to suppress, and, simultaneously to create new jobs. As an example, the insertion of informatics in most areas led to the disappearance of posts dealing with archiving, filing, etc., and the emergence of others like- programmers, system engineers, analysts, etc. Another example it is the introduction of robots in handling objects-on the one hand are eliminated jobs related to

manual charge and discharge and on the other hand are created new jobs in maintenance and repair robots, and so on.

In the most of the cases, the introduction of new technologies, rather suppress than create jobs. But analysts from this field believe that, on long term, technological changes do not lead to large reductions of positions because it lead to better productivity and competitive position on the market, which ultimately, are conductig to increases in the workload and thus, there are created new jobs for work. Instead, the joint effect of these deletions and creations of jobs are modifying the distribution of the jobs by sector: there are massive migrations from primary and secondary sectors to the tertiary one.

Jean-Marie Peretti believes that "the acceleration of technological changes causes a more pronounced aging of the skills of the workforce", as they are influenced by the work content and skills required (Peretti, 1994, p. 18). Therefore, enterprises must monitoring the market for new technologies ( "technological watch") and anticipate these influences on human resources management. Also, firms should ensure the training and development for the required skills in order to bring innovation in technology, as well as a possible recruitment of qualified staff.

An example of changing the nature of the work as a result of new technologies it is the teleworking: employees are working at home, using computer, phone and Internet to send letters and data at work. As a result, organizations and employees realize that are making savings on rents and transport. What must be considered here by the human resources department it is that these employees should be trained to perform this type of work, and being monitoring in the process of work on the obtained performance.

New technologies and the new created jobs often conduct to improvings on the physical context of the work (most modern technology involve a modernized space, a favorable climate conditions, and so on). But we can highlight also even the negative effects of new technologies: stress increased due to increased complexity, health problems (headaches, visual disturbances, etc). The working conditions can conduct also to better collaboration between managers, technicians and analysts, since their implementation requires a correlation between all company departments concerned. This will create confidence in the company, and development.

The following table refers to the reducing of the number of employees as a result of new technologies, and it explains the causes of this measure and the consequences, offering recommendations to manage the possible scenarios:

Table 1: Staff reduction (causes, consequences) and the management of the remaining employees

CAUSES	CONSEQUENCES	POSSIBLE ACTIONS
Automation	Reducing wage expenses	Anger, distrust, and the shock must be treated properly
Restructuring	Removal of the surplus employees	Provide information on why the action had to be taken
Merger	Improves business operation if products and services are integrated successfully in a new company	Inform employees about how will be helped the firm and the employees on long-term
Acquisition	There are shocks for those who leave the company	Inform the employees about the benefits after purchasing and taking adaptation measures at the new job
Competitive pressures	There it is a shattering impact on employee motivation and morale, if it is not managed properly	Install a trusted environment in organization and execution of tasks by the employee left behind in order to save the company

Source: adapted from *A guest lecture on impact of technology on HRM*, P. B. S. Kumar, <http://www.citehr.com/142252-technology-impact-hrm.html> [accessed 2016].

Regardless of the cause for making dismissals, there must be encouraged the remaining staff, because the company must carry out the proposed objectives. Thus, the personnel must be motivated, supported, informed about the beneficial aspects of these actions, even if outsiders are perceived negatively the situation.

On the grounds that technological change and are leading to boost productivity, "organizations must employ a concerted effort on the levels of research and development activities and human resources" (Sărățean, p. 45). Human resources have to adapt to the new context and new technological requirements of the jobs through training and a proper skills management, in order to obtain stability on long-term perspective, based on the future needs of the organization and personal goals of each employee. Skills management it is in turn correlated with activities such as: evaluation, compensation, career planning, etc.

## **CONCLUSIONS**

The problems involved in using new technologies require human resource management, and are viewed in terms of skills, flexibility and adaptability. Thus, human resources managers will need to consider:

The current organization of work and changes that may occur in that area, which may lead to changes in the recruiting and selection of human resources;

The main techniques and technologies used in the enterprises in operational activities (production) and also in the functional area (for administration) are key points to establish quantitative and qualitative development needs of staff and give the need for the required staff;

The predictable innovations in production processes that require employees with new skills need time for preparation. The human resources department must be interest in this vital point, and have to warn the company that it isn't profitable to invest in technical and sophisticated technology if there are no investments at least equally in human resources.

## **REFERENCES**

Armstrong, Michael, *Managementul resurselor umane: manual de practică*, Ed. Codecs, București, 2009.

Băloiu, L. M. , Frăsineanu, I., *Gestiunea inovației*, Ed. Economică, București, 2001.  
<http://www.citehr.com/142252-technology-impact-hrm.html> [accessed 2016].

Peretti, Jean-Marie, *Ressources humaines*, ediția a-IV-a , Ed. Vuibert, 1994.

Sărățean, Elena, *MRU: suport al schimbării*, Ed. Mirton, Timișoara, 2003.