THE "TECHNO-STRESS" PHENOMENON - MEASURES TO PREVENT IT IN MODERN ORGANISATION

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Abstract: The use of new information and communication technologies (NICT) as a working tool has a particular impact on modern organizations. Although technology itself is "neutral", it can also generate negative consequences for NICT users who may suffer the so-called "techno-stress." The concept and hence the extent of this phenomenon have varied over time. In this sense, the objective of this study is twofold. First of all, we propose to analyze the phenomenon of "techno-stress" (or the psychosocial stress associated with the use of new technologies), which are the main changes in the workforce associated with the use of new technologies that affect the psychosocial health of employees which organizational and individual factors modulate these relationships. Secondly, we intend to explore the main strategies for preventing and minimizing techno-stress in order to ensure professional performance.
Key words: NICT, techno-stress, techno-anxiety, techno-fatigue, techno-addiction, technophobia.
JEL Classification: M15, O15.

1. The influence of NICT in modern organizations

The development of new information and communication technologies (NICT) generates a scenario characterized by integrating computer systems and communications networks with the formation of a global system that communicates computers and other peripherals through communications networks. This new technology enables the range of services, techniques, applications or services to be diversified.

At work, the use of technology applications and services becomes important to support certain business activities. So, we are currently witnessing the implementation of new technologies in production, sales and marketing, research & development, management, etc.). NICT applications are found in two areas within modern organizations, namely: production and office activities. The production activity (computer-assisted manufacturing) focuses on technologies such as numerical control systems, robots, command and inventory management, assisted control storage and production systems, assisted control measures, automated vehicle guides, programmable pallets, assisted production and assisted design. As far as office activities are concerned, NICT is found in technological systems such as word processing, data, images and voice, document archiving and retrieval, e-mail, integrated database management, assisted decision support, local networks (intranets), international networks (internet) and electronic selling points.

However, technological change generates technical problems with consequences for both people involved and companies. This is why there is a demand for prevention and counseling to avoid the risks and negative effects of technological impacts on business efficiency.

Regarding the relationship between the introduction of NICT and the level of employee satisfaction at work, we can refer to the term "techno-stress", defined as the stress caused by the introduction of new technologies in the workplace. Thus, new technologies can become more stressful. In this context, the aim of this paper is to present

the phenomenon of techno-stress and the main strategies of prevention and intervention in this field.

2. The "techno-stress" phenomenon

Implementation of NICT is responsible for effects at both social, organizational and individual levels.

Regarding the possible changes caused by the introduction of new technologies, it should be noted that the industrial society has turned into a technological society, causing significant changes in the labor market. In this respect, it was hypothesized that the continuous and accelerated process of technology means the destruction of jobs, but also the development of new ones, the creation of a new type of work (remote work, characterized by flexibility). The use of new technologies has led to a reduction in working time at the place of work, offering the possibility of allocating the remaining time to formal education.

NICT can change certain aspects of the work environment, turning these aspects into potential stressors that affect the psychological health of user workers or, on the contrary, improve it. It will all depend on the design, implementation and management strategies of new technologies and the personal characteristics of potential users (Figure no. 1).
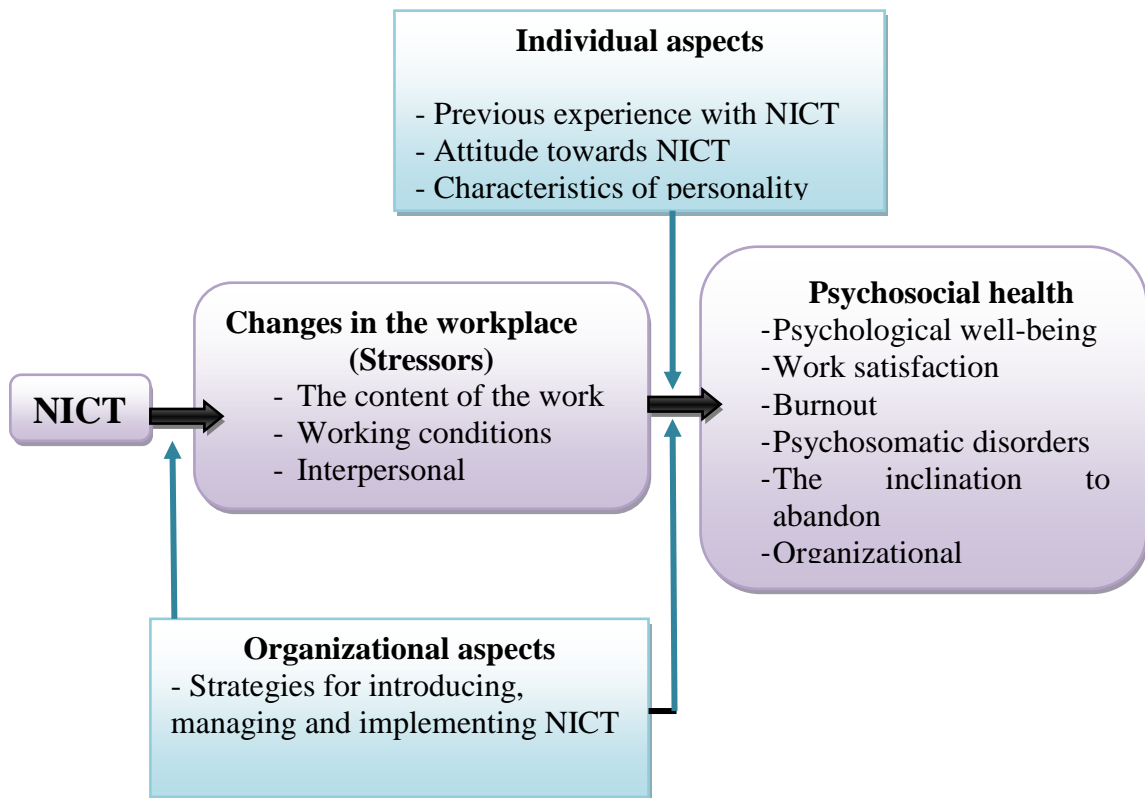

Figure no. 1. The "techno-stress" phenomenon

Source: INSHT, 1999. *El proceso de "Tecnoestrés" y estrategias para su prevención. (II).* [pdf] Available at: <http://www.insht.es/InshtWeb/Contenidos/Documentacion/TextosOnline/Rev_INSHT/1999/2/seccionTecTextCompl1.pdf> [Accessed 10 March 2018].

Thus, the impact of new technologies on psychological health is not direct, but depends on changes in the workplace, NTIT introduction strategies, and worker-worker characteristics.

3. Types of techno-stress

The techno-stress phenomenon is manifested in three forms, namely: techno-anxiety, techno-fatigue, techno-addiction (Figure no. 2).
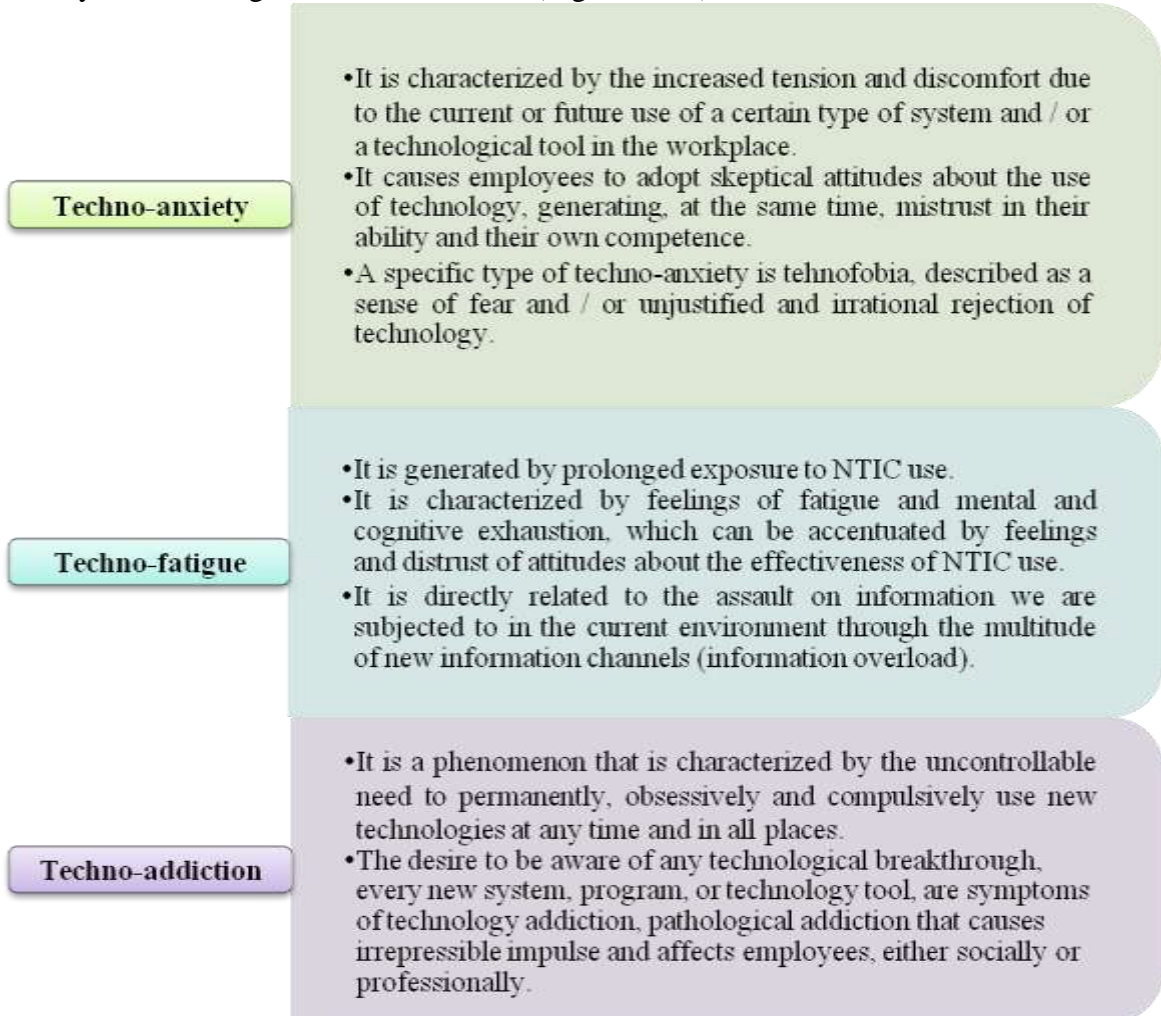
Techno-anxiety
- It is characterized by the increased tension and discomfort due to the current or future use of a certain type of system and / or a technological tool in the workplace.
- It causes employees to adopt skeptical attitudes about the use of technology, generating, at the same time, mistrust in their ability and their own competence.
- A specific type of techno-anxiety is tehnofobia, described as a sense of fear and / or unjustified and irrational rejection of technology.

Techno-fatigue
- It is generated by prolonged exposure to NTIC use.
- It is characterized by feelings of fatigue and mental and cognitive exhaustion, which can be accentuated by feelings and distrust of attitudes about the effectiveness of NTIC use.
- It is directly related to the assault on information we are subjected to in the current environment through the multitude of new information channels (information overload).

Techno-addiction
- It is a phenomenon that is characterized by the uncontrollable need to permanently, obsessively and compulsively use new technologies at any time and in all places.
- The desire to be aware of any technological breakthrough, every new system, program, or technology tool, are symptoms of technology addiction, pathological addiction that causes irrepressible impulse and affects employees, either socially or professionally.

Figure no. 2. Forms of techno-stress

Source: Prevencio Laboral, 2018. *El tecnoestrés, Observatorio permanente de riesgos psicosociales Secretaría de Salud Laboral y Medio Ambiente UGT*. [pdf] Available at: <http://www.prevencionlaboral.org/pdf/riesgos%20psicosociales/Folleto_Tecnoestres.pdf> [Accessed 12 March 2018].

4. Measures to prevent the techno-stress phenomenon

The goal of NICT's stress prevention measures is to strike a balance between the requirements of implementing these new working methods and the ability of the employees to respond so that the level of techno stress is minimized, the emergence of risks in worker-technology interaction. These measures can affect three aspects: technical, organizational and individual.

From a technical point of view, these measures concern the design of the most appropriate technologies to facilitate workplace deployment in optimal conditions.

As a techno-stress prevention measure in the workplace, in *technical terms*, we propose that technology be designed with at least three basic aspects: tailor-made and adaptable design to personal characteristics, easy access and understanding of systems and tools (providing better interaction between worker and technology facilitates the use, exploitation, productivity improvement) and encouraging a "friendly" technology approach for "non-technical" workers. Technological changes that prove to be more inefficient, whether they are useless, are not accepted, are not "friendly" or are not ergonomically designed, should be replaced.

Regarding the *organizational aspect*, the measures concern the reduction and adaptation of labor demand (increasing mental effort, raising the level of attention, high work rate, difficulty of tasks, carrying out more tasks simultaneously, etc.) by implementing these new systems information and communication.

In this way, there is an improvement in the worker's resources (social support, teamwork, improving the working climate, greater autonomy and control, improving knowledge of the work done on the final result, facilitating equipment and systems to facilitate decision-making, and problem solving) to meet the job requirements.

As measures to prevent techno-stress in the workplace, from the organizational point of view, we propose:

- Adjusting the amount and complexity of work, the pace of work and the time required to achieve it, alternating tasks. These will reduce the mental effort with diresect effect on the decrease in stress level.
- Process automation should be directed to greater autonomy of the worker, freeing him from performing routine auxiliary, monotonous tasks, thus enabling him to focus on more important tasks.
- Creating efficient communication systems, redesigning workstations, training.
- Employee participation in the choice of technological systems and their implementation. This improves the acceptance of new systems and tools and reinforces the psychological link of employees with technology, improving productivity.
- Planning specific, technology-oriented training courses is one of the most effective preventive strategies to cope with technological change.

At the *individual level*, acceptance of technology is based on the fact that its design gives employees a certain sense of control and autonomy over the task.

Preventive measures of an individual nature can have an impact on generating new skills and improving employee attitudes to technological change. A proposed measure at the individual level is to develop the skills and competencies needed to work with NTIC. It has to adapt to the training level of the employees and avoid losing the qualification after the implementation of the new technologies, promoting continuous and practical training through appropriate training programs.

5. Conclusions

The techno-stress phenomenon describes the negative psychological state of the use of new information and communication technologies or the threat of their subsequent use.

Thus, prolonged labor exposure to new technologies (such as the internet, mobile telephony, laptops, etc.) or the inability to effectively meet the requirements of their deployment can produce fatigue, stress and other disorders (anxiety, depression, difficulty in concentration etc.).

To avoid the risks associated with using NICT, a first step is to identify the risk factors associated with techno-stress, followed by assessing the risks that could not be avoided and determining as many precautions as possible to avoid or minimize techno

stress. However, it is pointless to set a number of preventive measures, no matter how appropriate they might be, if proper planning of their implementation is not achieved.

It is essential to establish, together with the preventive measures and deadlines for their implementation, the necessary human, material and financial resources.

In conclusion, the involvement of managers and employees in the prevention of the risks associated with the use of NICT is essential, allowing them better and faster assimilation on the one hand and, on the other hand, increasing the effectiveness of their implementation, ensuring safer and healthier working conditions for employees and greater productivity for the organization.

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