DIGITAL TRANSFORMATION IN ORGANIZATIONS: THE IMPACT ON WORKING LIFE QUALITY AND NEW RISK FACTORS

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ABSTRACT

The subject of the study is to analyse any critical factors related to the use and abuse of digital tools in the workplace, to assess their impact on work in terms of health and safety and to identify appropriate prevention and protection measures. This work aims to improve well-being and the performance of workers and organizations in relation to ongoing changes and challenges. For this purpose, a systematic international literature review was carried out with a special attention to the analysis of the validated questionnaires used in European and international contexts related to the evaluation of the impact of digital on working life quality and new risk factors. In this context, the digital transformation in the organizations, due also to the increasing use of information and communication technologies (ICT), determines changes in the workforce and management practices, with important effects, in terms of risks and benefits, on job characteristics and on the working life's quality too.

KEYWORDS

ICT, Well-Being, Workers, Occupational Health and Safety, Digital Transformation

1. INTRODUCTION

The World Health Organization defines health as 'a state of complete physical, mental and social well-being'. Health begins at home and in community where people live and work. According to the European Agency for Safety and Health at Work (EU-OSHA) strategy for 2013 – 2020, a more significant risk education is due to rapid development of the society, new technologies, globalization and changed demographic processes happened in the last decade. These changes have led to a redefinition of the world of work offering great opportunities for developing and increasing of the companies' competitiveness, but at the same time, they have had an impact on the characteristics and attitudes of the workforce, modifying the nature of the work itself, including the way in which the work is organized and managed. This digital transformation defines in the organizations the loss of traditional physical and temporal constraints, for companies and for employees both consider for example that everyone can be reached in any place (everywhere) and at any time of the day (always-on).

Starting from these assumptions, the EU-OSHA, in accordance with the basis of the strategies identified by the European Commission, has included among the research priorities in occupational health and safety at work (OSH) the impact of ICT on the job, emphasizing the need for an integrated and proactive approach for the identification of emerging risks related to changes in the world of work, which have to start from the design and development of new applications and the identification of appropriate prevention measures.

The current scenario of the labour market, in fact, is characterized by important technological innovations such as robotics, smart working, key enabling technologies (KETs), which will profoundly transform industrial processes, offering great prospects for development in terms of productivity and plant quality.

According to the latest World Economic Forum (WEF) study, within the next ten years, more than half of the current jobs are at risk of disappearing, while others will be created mostly related to technological innovation.

This landscape of the future of work will entail further complexities to manage and set in with a view to prevention, in order to increase the sustainability of work, including: new forms of work organization and new risks, the need to face important changes in the work management (e.g. flexible forms of work, new forms of work organization, psychosocial aspects). Technology innovation offers new opportunities to update and improve risk assessment and management using for example sensors and enabling technologies. This new setting, also known as the fourth industrial revolution, overcoming the Fordism and its conception of work, determines new paradigms in relation to roles, tasks and skills for workers and great opportunities for development and competitiveness growth for companies.

In this perspective, digital technology has significantly changed the way in which we communicate, interact and socialize by determining, also through the growing use of social and collaborative platforms, changes in the way we learn and share information, contents and "knowledge". Technology is also influencing the new organization of work, promoting coordination, capacity and shared knowledge with respect to centralization, but offering a new disruptive role face to a fragmented knowledge. In this situation, the technology, particularly the social and collaborative platforms are progressively interesting the workplace. In Italy, for example, the 2017 Survey of the National Statistics Institute finds that 72.1% of companies, with at least 10 employees, have their own website and/or web page (71.3% in 2016), and in 44.0% of cases they use one or more social networking platforms (39.2% in 2016). The spread of these solutions, is also affecting the new organization of work, primarily in terms of performance and well-being, but also in terms of development even because these tools can be used to satisfy customers and stakeholders.

2. METHODOLOGY

This study started from a systematic international literature review (from 2006 to 2016) through the following databases: Scopus, PubMed, Researchgate.net, ScienceDirect, with particular regards to scientific studies related to the evaluation of the impact of digital technology on the workers' well-being, followed by an examination of the validated questionnaires, more used in European and international contexts linked to the evaluation of the impact of digital in the workplace.

3. QUALITY OF LIFE AND NEW OCCUPATIONAL RISK FACTORS

The processes of innovation and digital transformation have an impact as well as on the increase of the company business, on the quality of the people working life and on the creation of new job opportunities. However, it can determine new risk factors for the workers due to the excessive workload, to the information overload and a pervasive use of digital tools, to a major exposure to continuous interruptions and intrusions and to the lack of separation between private life and professional life.

It is therefore important to observe and monitor changes in work organization, studying the effects on workers' health and safety because it is not always easy, in this regard, to distinguish between the use of digital tools at work and in private life. Working in a more flexible way, undoubtedly, represents an opportunity and a need for complex organizations, in terms of work-life balance and performance, without neglecting the effects on environmental sustainability of urban mobility given by the reduction of traffic and pollution. However, it is also necessary to evaluate carefully the aspects linked to the possible isolation of the worker - who carries out his activity outside the company context, such as in smart working, and who may not feel involved in company logics - and those related to performance evaluation, as there is still a strong correlation between career, progress and presence in the workplace. These aspects have repercussions especially in terms of gender question as they are often observed specifically in relation to the periods of women abstention from work for reasons of pregnancy and family care. Finally, the dynamics of the always-on, which should have negative consequences also in terms of dependence and abuse should not be underestimated, as some international studies have shown, a relationship between extreme use and high levels of anxiety, depression and stress (Booker 2014, Salanova 2013) and also anxiety when learning to use a new technology too, which eventually turns into psychological and emotional repulsion that prevents learning or use of the technology itself (Panova, 2016).

In the organizations, the stress linked to the use of ICT refers, above all, to data smog, multitasking madness, hassles computers, burnout, techno addiction and techno strain. Specifically, Salanova et al. (2013) have shown that this experience can be related to feelings of anxiety, mental fatigue, scepticism and inefficiency and have associated that with a negative psychological state related to use, or the prospect of having to use ICT. Technostress can therefore be traced back to a series of psychosocial factors such as work overload, interpersonal conflicts, ambiguity, conflict and role overload, conflict between work demands and family demands, insecurity. Booker (2014) has identified, in addition to five risk factors responsible for the onset of technostress: techno-overload, techno-invasion, techno-complexity, techno-insecurity and techno-uncertainty, three inhibitory factors that allow reducing the effect of stress linked to the use of technology and concerning literacy facilitation, technical support provision and involuntary facilitation.

Digital technologies have also renovated the way in which information is collected, used and remembered; for example in 2015, Kaspersky Lab has published a study in which it has described the attitudes of users to transfer the task of remembering information to their digital devices. This phenomenon called as digital amnesia affects the workplaces too.

Finally, the use of digital, by changing contextual references and work environments, expose workers also to new negative impacts such as violation of privacy, harassment and cyberbullying.

4. CONCLUSION

From the studies examined, it emerges that the most analysed areas are *use and familiarity* (Tarafdar 2011), *learning in the workplace* (Booker, 2014) and *relations with social media* (Lander, 2014). The main dimensions investigated through the questionnaires related to the evaluation of the impact of digital on working life quality and new risk factors concern: Technostress, Offensive Content, Techno-overload, Techno-invasion, Techno complexity, Techno-insecurity, Techno-uncertainty.

As technostress inhibitors, Booker (2014) considers three factors, which represent mechanisms to decrease the effect of technology-related stress. The first one called literacy facilitation, which describes mechanisms that encourage and foster the sharing of ICT-related knowledge, reducing technostress because it helps users better understand ICTs and their uses. The second one identified as technical support provision that describes activities related to end-user support and reduces the effects of technostress by solving users' ICT problems relating. The last one is the involvement facilitation that could alleviate technostress by keeping users informed about the rationale for introducing new ICTs, by letting them know more about the effects of such introduction, and by encouraging them to use and experiment with new ICTs.

According to the Final report of Eu-OSHA (2018) some examples of OSH strategies which could help mitigate the challenges related to digitalisation in the workplace have to include:

- a strong 'prevention through design' approach that integrates a user/worker-centred design approach;
- a collaboration between academics, industry, social partners and governments on research and innovation in developments ICT-ETs/digital technologies to properly take account of the human aspects, in order to foster good quality work and good OSH;
- the involvement of workers in the implementation of any digitalisation strategies to identify the tasks best suited to automate and to structure work processes from the point of view of workers being assisted by digital technologies (rather than the other way around);
- a major challenge for the application of employment and social security laws, as well as for education and training approaches, relates to a more diverse and less well-defined workforce and to changes introducing more flexible working patterns (e.g. on-line platform working), which are expected to be brought about by an increase in the prevalence and spread of ICT-ETs.

This is because ICT-ETs allow work to be done virtually anywhere and at any time, and, for many workers, this is expected to fundamentally change the traditional employer-employee relationship. This also results in a blurring of the boundaries between work and private life. The impact of ICT-ETs on the location of work could also make defining work as the place where a problematical person is employed. These changes to the definition of work and workplace challenge the regulation and management of OSH.

In this perspective, our research activity is directed to the development of a questionnaire in order to better know and analyse the effects connected to the use and abuse of the digital technologies in the Italian workplaces through the assessment of workers' perception.

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