

# Digital transformation: what is the impact on training?

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## *Abstract*

Digital transformation makes great strides and deeply impact training and its users. On the one hand, this transformation stimulates innovation, creativity, democratization of knowledge and forges links between several disciplines. On the other hand, it also greatly modifies the practices inherent in training in terms of the relationship between time, space and inter-knowledge. In addition, some inequalities will be established. These inequalities find their explanation in several factors called "conversion factors". Another dimension of this transformation is manifested in the significant evolution of the field of human resources. These developments will call into question the role of the trainer, as well as their skills going forward.

**Keywords—** *digital transformation – impact – training - distance training.*

## I. INTRODUCTION

Historically, the massive use of information and communication technologies (ICT) to deliver different modes of training has been a source of controversy giving rise to different opinions. Some works insist on the profound effects of their introduction which proves to be disruptive and a source of inequalities between beneficiaries [1].

Moreover, more and more with the rise of digitalization, we are witnessing an exponential development of knowledge and skills [2]. Therefore, it is essential that training follows this change by modifying the ways of learning and training methods. Undeniably, digital transformation impacts the different modes of training both positively and negatively. To what extent, then, does this transformation impact training and what are the different dimensions of this impact?

To answer these two questions, this article will be structured around five points. The first will be devoted to a conceptual framework of the digitalization of training. The

second will deal with some of the positive effects of digitalized training. The third point will discuss the impact of digitalization on training practices. The last point will deal with the evolution of the trainer's job as an immediate consequence of the digital transformation.

## II. THE DIGITIZATION OF TRAINING: CONCEPTUAL FRAMEWORK AND RELATED NOTIONS

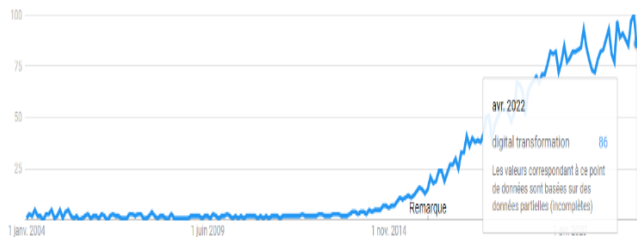
### A. Digitization

Through our readings, we have noticed that it is difficult to find a precise definition for the word "digitalization" due to its transversal dimension. However, according to the Petit Robert, digital is a "tool in which binary coding is used" (Petit Robert, 1978, p541). Thus, some authors define the concept of "digitalization" as a process of adoption (introduction) of digital technologies (digital) dealing particularly with the transformations induced by information technologies (IT)[3]. Digitalization has, therefore, a connotation of transformation and change for the purpose of improving the various processes that deal with digitization.

### B. Digital transformation

Digitalization denotes the notion of digital transformation that can be defined as a process which leads to a range of transverse actions that must be implemented in the face of information and communication technologies[4] that drive said processes towards new ways of acting and interacting through the use of digital technologies in order to continuously improve. However, some authors confirm that it is difficult to define what digital transformation is since the ins and outs are still not well defined [5]. This partly explains the growing interest in research around such transformation. The figure below highlights the importance of this notion, which has been given the role of spearhead in academic research in recent years.

Fig.1 Evolution of interest in searching for the term “digital transformation” at the global level from 2004 until today.



Source:GoogleTrends<https://trends.google.fr/trends/explore?date=all&q=digital%20transformation#timeseries>

### III. POSITIVE SPIN-OFFS OF DISTANCE LEARNING

The devices set up during distance learning courses combine distance learning and digital use. This combination offers more flexibility in learning modalities and makes several functionalities available to different users [6]. Moreover, making information exchanges more fluid, digitizing educational content and participating in the development of skills via a range of digital solutions are all assets of digitalized training [2]. The digitalization of training is also a step towards the digitalization of the entire organization. In fact, no one can deny how much the role of training has evolved. From a purely informational role as a channel of diffusion and promotion, to a more strategic role that supports innovation, creativity and change management by using digital devices and by acknowledging the advantages and risks related to this choice. The digitalization of training also serves purposes such as innovation in learning, rationalization of the training budget, control of logistical variables (room reservations, necessary supplies, etc.), and the dissemination of a digital culture [6].

Moreover, it is an ad hoc source that is already perfectly suited to unprecedented pedagogical innovation in terms of collaboration, interaction and adaptation to the immediate needs of learners. In other words, digitalization would be a real opportunity to facilitate flipped pedagogy, data mining, and the interweaving of neuroscience and training engineering in order to make the pedagogical leap that is a corollary of societal transformation in the Web 2.0 era.

In the end, digitalized training, and particularly MOOCs, “make knowledge available anywhere, at any time, for anyone (whether in initial education or further training). New practices have sprung up which cannot be ignored.” [7].

### IV. THE DIGITAL TRANSFORMATION MODIFIES GREATLY THE PRACTICES INHERENT IN TRAINING

One of the most striking transformations engendered by e-learning is certainly the relationship to time. This relationship offers more autonomy for the participants to choose the moment that suits them to train and to be trained by adopting the preferred mediation devices. These new practices give rise to what can be called “nomadic learning” [7] with all its corollaries in terms of breaking down learning sequences and adapting evaluation methods. In regards to this temporal relationship, the digitization of training can be linked to a temporal fragmentation that generates a dispersion for learners that is aggravated by operational constraints, as

well as a challenge for trainers to manage their availability and to balance between the empowerment of participants and their supervision [6].

For their part, Charrier & Lerner-Sei, (2011) evoked the consequences of a desynchronization of the participants during a distance training which simultaneously presents an advantage and disadvantage for the learners. In fact, said learners can train while maintaining their professional activity, although they may be relatively deprived of any possibility of support both by trainers and by peers. In the same logic, Oudart [8] emphasizes the importance of this time relationship by specifying that “time is both an ally and an enemy of support” which requires the management of different temporalities (action, support, reflection) to balance the different learning rhythms that can be a source of instability and misunderstandings between the “interactants” [9].

The second change in learning related to e-learning is related to a discontinuity of inter-knowledge [6] and a relational rupture within the group [7]. This change results in the isolation of the participants who finds themselves alone in front of the content of the training and facing the technical problems of its digitization without mutual aid or support from either party. This is a fragmentation of inter-knowledge that can be taken into account thanks to the transactional distance [10] which emphasizes the importance of dialogue and interaction between peers. To compensate for this absence of the alter, of the other, and to “tame” this relational distance, the authors propose to schedule preliminary meetings before the training session in order to foster inter-knowledge between the participants and establish a climate of trust between them.

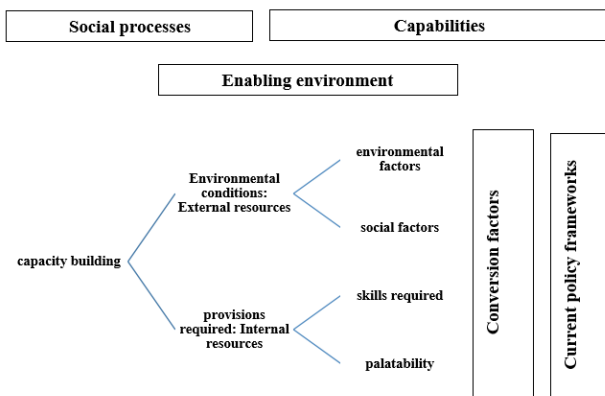
The third transformation caused by digital technologies concerns the co-creation and cooperation that some organizations institute to jointly develop a distance learning device and benefit from a common synergy that can achieve savings in terms of time and cost [7].

The fourth change generated by the increased use of digital technology, this time at the individual level, is the transformation of our ways of memorizing and thinking as a result of the various visual, auditory and tactile simulations linked to digitalization. Even more profoundly, our mental operations are affected and inevitably touch our capacities of perception, analysis and action. Moreover, the successive solicitation of information of different importance weakens our attention capacities [11].

## V. DISTANCE LEARNING AND INEQUALITIES BETWEEN TRAINEES

In an article that treats the effect of digitized training on employees' learning, Boboc A. and Metzger J.L. [6] mobilizes A. Sen's capability approach and shows the entanglement of so-called "conversion factors" that feed learning inequalities in terms of distance learning. These conversion factors are divided into individual factors such as dispositions, knowledge, know-how; social factors such as context, social norms; and environmental factors such as infrastructure. Thus, the two authors deduce that the non-success of certain individuals is not only explained by a lack of skills, but also by the deprivations that have characterized their lives and by the mismatch between their dispositions and the conversion factors. Fig.2 highlights this capability approach to training.

Fig.2 Capacity approach applied to training[6]



Source: authors

In this sense, the two authors deduce that "if not envisaged in all these dimensions, the introduction of digital training systems risks not only failing to meet the stated objectives (high drop-out rate), but above all aggravating the unequal distribution of learning capacities among employees".

As for Ben Youssef A. [12], he relates in his article four dimensions of the digital divide. The first concerns economic and social inequalities related to equipment and infrastructure. These inequalities are accentuated for the non-equipped who, consequently, are excluded from a quality informational and relational access. The second dimension of the digital divide can be attributed to the uses of ICT. This version of the divide concerns the way in which ICT are used to meet manifested needs. In this sense, the literature evokes two explanatory factors of this second dimension of the digital divide: on the one hand, the cognitive level of the participant, and on the other hand, the quality of innovation in terms of products and services offered via digital devices. The third dimension concerns the effectiveness of the uses and their contribution to the improvement of individual performance. In fact, the divergence of these performances is explained by the differentiated contribution of ICT for each individual. The last family of digital divides addressed by the author relates to inequalities that modify learning processes thanks to (or because of) the informational and cognitive abundance induced by ICT. This abundance reveals significant gaps in terms of individuals' dispositions towards

education and knowledge, especially since this profusion requires specific skills to manage and exploit it better.

For Peraya Daniel[13], these inequalities cannot be reduced to a set of conditions of accessibility, equipment, use or even quality of use, but "they are manifested first and foremost in the diversity of practices resulting from a variation of social inequalities". These inequalities can take on the character of an imposed use of ICTs, especially in a professional context.

## VI. SIGNIFICANT TRANSFORMATIONS IN TERMS OF HUMAN RESOURCES

The use of distance and digital technology presents many difficulties for trainers who find their jobs transformed [6], [7]. This dematerialization of the training offer will impose a certain transformation of the trainer's profession and the modes of its exercise. This change can be explained by the obligation for trainers to be in phase with the new skills to be acquired in ICT and pedagogical engineering, but also, to face the new professions that are emerging along the way. Thus, one of the manifestations of this evolution lies in a new role for the trainer / facilitator who would no longer be the main source and the only transmitter of knowledge while accepting to play several roles of animation, accompaniment, and tutoring, etc.

### Conclusion

The objective behind this article is to highlight how training is impacted by this growing wave of digitalization, which will undoubtedly, and perhaps permanently, have profound repercussions on societal transformation.

Digitalization can be a lever for the development of quality training, provided that it is taken into account in all its dimensions when designing and implementing digitalized training, especially those in distance mode.

Finally, it is of paramount importance that those in charge of the training function within any organization support the liberation of potential and rely on the human being as the spearhead and cornerstone, and not only on technology, in order to transform in depth and in the right direction.

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