The Clinical Informatization in Portugal
An Approach to the National Health Service Certification

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ABSTRACT

In the context of the Technological Revolution, people are forced to change their way of being in order to survive in an increasingly competitive and efficient society. The healthcare sector is no exception. The clinical informatization brought a lot of changes in procedures and ways to act and manage in order to follow the advent of the Information Age. However, this clinical informatization should be evaluated and measured in order to report the actual stage of dematerialization and identify possible improvements. The maturity models, such as the EMRAM model, are good candidates to reach these goals. On behalf of the Health Ministry, the Portuguese Shared Services of the Ministry of Health wanted to implement the model in the National Health Service to certify, at a clinical level, the institutions, and, at the same time, contribute with a new methodology to ensure the certification of administrative services of health institutions.

KEYWORDS

Certification, Data Mining, Dematerialization, EMRAM NHS, HIMSS, Informatization, SSMH

INTRODUCTION

Over the years, the human being has been exposed to several limitations that allow the test of the boundaries of their capacity to adjust to adverse situations. People have been forced to adapt their behavior to respond to the advances of society and, mostly, they are forced to envisage new attitudes. This capacity to rationally adjust themselves is the leading promoter of the several transformations that have been happening over time. Nowadays, another revolution is taking place with the implementation of the Information Age in every social sector. There is a new breath of air with the digital transformation and the acquisition of procedures that facilitate the exchange of information. This revolution is called technological revolution and is based on the continuous adaptation to an increasingly more technological world. For some authors, this is the “Third Industrial Revolution” (Altenpohl, 1986).

Despite the benefits that information systems can bring to our society, and particularly in the health sector. Their implementation is still controversial, and, in some cases, the resistance from the health care staff is evident. Thus, mentality change is necessary. It is also necessary to instill the concept of clinical transformation. In Portugal, currently, there is an ongoing project that aims to
achieve dematerialization. This project is called “SNS Sem Papel” (the paper-free national health system) and arose from a Governmental Proposal for the Healthcare Ecosystem. The primary purpose of the project is to achieve a dematerialized medical environment and, at the same time, certify public hospitals with the HIMSS EMRAM model. The article focuses on the explanation of the main targets of the project.

DIGITAL TRANSFORMATION

The application of information systems in healthcare leads to clinical informatization. To better understand the concept of clinical digital transformation, it is necessary to go to the bottom of this issue, the process of informatization. This concept is rooted in the society since the ‘60s when the first definition of the term emerged. In the late ‘60s, in Japan, it was named johoka, and intended to cover the phenomenon of social change in which a nation tries to advance in order to achieve an information society character (Rogers, 2000).

Since then, many definitions for this term arose. Although, the digital transformation is the process in which the implementation of information and communication technologies lead to many transformations, minimizing the cultural and economic barriers, shaping the cultural and civic discourse and, above all, leading to socio-economic development. This growth happened simultaneously with the transformation of society into an increasingly more information society (Rogers, 2000; Jandt, 2004). In 1994, Georgette Wang defined this process as “a process of change that features (a) the use of information and IT [Information Technologies] to such an extent that they become the dominant forces in commanding economic, political, social and cultural development and (b) unprecedented increase in speed, quantity and popularity of information production and distribution”(Jandt, 2004; Wang, 1994).

Advantages and Disadvantages of the Digital Transformation

On the one hand, the process of digital transformation is associated with good and bad repercussions. Generally, it is possible to verify the profound influence that informatization triggers in the organizational structures and the balance of power. On the other hand, this process leads to fundamental changes in several areas, such as production, distribution and consumption in different things as knowledge, goods and culture. However, above all, it is essential to emphasize visible repercussions. The information technologies are applied in a way that the human beings process the reality, meaning the perception and interpretation of the daily experiences (Mul, 1999).

The perspective of good and bad influence depends on the diffused image of the information systems. Back in 1986, it was apparent to Dieter Altenpohl that the industry and the governments had made a great work to discredit all the benefits that information systems could bring to society. According to the author, the implementation of information systems could bring both positive and negative consequences (Altenpohl, 1986). Nowadays, this resistance has been, almost, eradicated, and the impact generated by the implementation of the information systems in the society is evident, not only in educational purposes but also in politics, religion, economics, and in volunteering (Jandt, 2004).

On the other hand, it can bring flexibility and adaptability, because it allows the production of custom-oriented products, which leads to a new decentralized scope. The improvement of the quality of jobs is another point where it acts, mostly because of the automation of some tasks, allowing to encourage the creativity and intuition because the employee’s focus is not on repetitive and automatic assignments. At least, it allows a higher flow of information and the improvement of the resources in order to integrate an international arena on many levels (economics, political, cultural). However, and despite the good things implemented through the digital transformation, the security of the information in the private sphere, both personal and professional, and the number of jobs performed by human beings, find a threat in this transformation because, firstly, the information available can be intruded and used for malicious tasks, and second, some employees can be replaced by computers, robots or virtual agents, in particular, to replace repetitive or automated tasks (Altenpohl, 1986; Jandt, 2004).
Integral Equation Formulations and Related Numerical Solution Methods in Some Biomedical Applications of Electromagnetic Fields: Transcranial Magnetic Stimulation (TMS), Nerve Fiber Stimulation

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