

STRUCTURAL CHARACTERISTICS FOR THE DIGITAL TRANSFORMATION OF HEALTH IN BRAZIL

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ABSTRACT

The objective of this study was to identify the structural characteristics for the Digital Transformation (DT) of health in Brazil. A structured bibliographic search was chosen, conducted in five stages. It was perceived that DT involves a multidisciplinary change, which impacts how companies do marketing, distribute services, and use information technology, forcing a reassessment of organizational strategies to ensure sustainability and competitiveness in the market. In the health sector, DT follows a path similar to other sectors, absorbing the capacity to innovate in the provision of services and improve user participation. DT is divided into three main phases that have significant impacts, such as reducing operational costs and creating smart companies, but also present challenges, such as the need to develop new organizational cultures and digital skills. It is concluded that Brazil, particularly in the Health Sector, has been following the global digital transformation. The proposal for Digital Health in the country represents innovation by providing platforms that facilitate patient participation in the healthcare provision process, through the encouragement of digital technology use.

Keywords: Digital Transformation; Health; Evolution.

INTRODUCTION

Digital Transformation (DT) in Brazil, especially in the health sector, represents a strategic movement that goes beyond the mere adoption of digital technologies. It combines digital innovation with the transformation of infrastructures and services, profoundly altering decision-making processes and the structuring of these processes within organizations. In the health sector, DT follows a path similar to other sectors, absorbing the capacity to innovate in the provision of services and improve user participation.

METHODOLOGY

A bibliographic search was chosen as the strategy to identify the structural characteristics of Digital Transformation in the health sector in Brazil. The research process was structured in sequential steps, namely: 1- Definition of the research problem: what are the structural characteristics for the Digital Transformation of health in Brazil? 2- Selection of sources: articles available in digital scientific databases such as Latin American and Caribbean Literature in Health Sciences (Lilacs), Scientific Electronic Library Online (SciELO), Information Science & Technology Abstracts

(LISTA) were used. 3- Critical reading and analysis of the materials. 4- Analysis and Synthesis of Information. 5- Preparation of the Research Report.

RESULTS

The discussion surrounding Digital Transformation (DT) is multidisciplinary as it involves modifications in the organization of a company's services, which implies a change in organizational strategy with alterations in how marketing is done, service distribution, and the use of information technology¹. All movement regarding DT originates from the evolution of Digital Technologies combined with the new behavior of individuals as users of these technologies in various fields: be it in industry, entertainment, education, or even as clients and patients in the healthcare system².

Some external factors stimulate and drive DT. The growing availability of broadband internet, technologies associated with smartphones, cryptocurrencies, cloud storage, social media, smart technologies, among others, has modified and strengthened the advancement of e-commerce³. With the arrival of digital technologies, consumers and organizations have changed the way they negotiate value and interact⁴.

More commonly and simply, both in organizational environments or at home, in work or leisure situations, the need to use devices that can generate documents in digital format such as text files, images, and videos is noticeable. These devices, *smartphones*, computers, *tablets* are present in people's daily lives and are capable of generating data, transforming manual documents into fully digital documents capable of reducing costs, generating less physical effort for those responsible, providing dynamism and agility in the process².

Three phases of digital transformation are considered: digitization, digitalization, and digital transformation. The Digitization phase, from the English term Digitization, means "the process of changing from analog to digital format, also known as digital enablement"⁵, meaning digitization transforms an analog process into a digital form without causing alterations, so that computers can store the process and transmit information^{1,6}. Several existing examples in companies can be perceived, as for decades, various handwritten and/or typewritten documents have been scanned into digital format or music converted to digital format. Digitization refers to the information

entered and not to the process, meaning in the creation of documents, there are no changes. A registration form can stop being filled out manually, and the same data can be entered digitally², such as a registration form filled out in a table in a text editor.

The second phase, Digitalization, from the English term Digitalization, does not have a clear definition in the literature and is often confused with Digitization⁶; however, it is a step ahead and reflects how business processes can be changed with the use of Information Technology². According to the Gartner Information Technology Glossary, digitalization "is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business"⁵. This definition focuses more on business model changes rather than social interactions, as, by applying digital technologies, companies can optimize their business processes in a more coordinated and efficient manner, between processes and the relationship with the user - enhancing experiences and adding value¹.

The creation of online or mobile communication channels between customers and companies, which allow facilitated customer interaction, is an example of digitalization with social interaction. Laboratories that provide test results to customers online and the offer of technology for online bill payment via mobile devices are also examples of digitalization.

Finally, the last phase is Digital Transformation (DT), from the English term Digital Transformation, broader than the others. It alludes to strategic business, directed towards the customer, which is linked to a significant change in the organization, with the development of new business models and the implementation of new technologies^{6,7}. Thus, a new business model is introduced by DT by establishing a more current logic of negotiation to create and capture value, for example^{6,7}, such as a paperless hospital with recommendation and decision support systems.

The entertainment industry transformed the movie rental process, previously done in physical stores, into fully digital movies available on streaming platforms (e.g., Prime Video®, applications like Uber®, PayPal®), among other examples. Therefore, ultimately, digitization and digitalization are, in essence, about technology, but DT is not. DT is customer-focused while the digital aspect operates at all stages of the process, "end to end," to generate growth, reach, and greater global business competitiveness^{1,2,8}.

All the characteristics of digital transformation described in the business world involving consumers and/or society equally reach health and the citizen relationship - in the context of public service, or the professional/patient relationship - in the context of the healthcare system⁹. Therefore, DT in health follows a similar path and has over time absorbed the capacity to create new ideas to improve the provision of health services, i.e., it has been innovating to follow the trend of more effective participation of professionals and service users with better yield ⁹⁻¹¹.

CONCLUSION

Brazil, particularly in the Health Sector, has been following the digital transformation in the world. The proposal for Digital Health (2020-2028)¹² in the country represents innovation by providing platforms that facilitate patient participation in the healthcare provision process, through the encouragement of digital technology use. As such, digital health involves the use of various technologies in conducting health services to improve patient health. Furthermore, it enables family participation in the process of monitoring the health of relatives, especially with the internet of things, transforming the way healthcare is generated and provided.

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