DIGITAL CULTURE AND KNOWLEDGE MANAGEMENT IN TELEMEDICINE. CASE STUDY IN ARGENTINA BOLIVIA AND COLOMBIA

ABSTRACT

This work describes the status of telemedicine in Argentina, Bolivia and Colombia, and the objective was to identify the development stages and adoption barriers such as cultural, organizational and technological changes.

The research was qualitative, descriptive with case studies. The triangulation consisted on observations, questionnaire, and interviews to experts.

The main findings showed that digital transformation in healthcare requires a clear business model and strategy, maturity in management practices, a digital culture and knowledge management seeking interoperability and organizational agility. Argentina and Colombia incorporated telemedicine, requiring increasing productivity of available resources; in Bolivia the implementation is in earlier stages.

Key words: Telemedicine; Digital Transformation; Digital Culture; Knowledge Management

INTRODUCTION

The digital transformation (DT) is related to the great changes that information and communication technology (ICTs) are producing in organizations. Digital platforms, the internet and information technologies, genetics, nanotechnology, robotics, artificial intelligence (AI) transform everything in their path. What is observed is that technology has an exponential growth rate, while individuals, organizations and society, in general, change at a linear speed.

Different authors (Alvertis & Viscusi, 2018; Accenture, 2017; CENTIC, 2016; Laloux, 2015) have addressed the complexity of the DT that comes to affect all areas of the organization. These works sustain that transformation requires maturity in management practices, and

clarity between the exploration and exploitation of its resources to achieve organizational agility.

The DT arrived at the medicine field through practices called telemedicine, online medicine, exponential medicine, among other terms, all practices of health organizations with different levels of integration. and development.

The network of professionals is the main input for telemedicine to work, however it is also considered to cause them to fail for assuming telemedicine as an end and not as the means.

Many countries in the world are making use of exponential medicine as a means of democratization and equality in quality medicine, which forces us to rethink the way health organizations operate, as ICTs require a particular ecosystem for their management and scalability.

The decrease in access to health care services by the most needy communities stands out, given the lack of medical surgical materials, medical personnel; the recurrent paralysis of activities and the inadequate conditions of the service network, which have caused many of them to have stopped working (WHO, 2017).

In Argentina and Colombia (IDB 2017), significant health expenditures have been made, but it is required to increase the productivity of available resources to improve planning and management of health services. In contrast, Bolivia presents a less satisfactory health situation in relation to some countries in the region. Although hospital centers in most Latin American countries have grown, there are still limitations in scope, especially in suburban and rural areas. Telemedicine and exponential medicine could come to solve this gap, since its methodology allows to bridge the distances between doctors, hospital infrastructure and patients. Telemedicine is based on these pillars: a) Patient access to the best available care; b) Equality in medical care; c) Quality in each treatment decision; d) Information for a healthier society.

The objectives for this project were: To describe the state of the situation of telemedicine and its development at the international and Latin American level in particular: Argentina, Bolivia and Colombia. Explain the concept of telemedicine and the typologies. Identify stages, adoption barriers, cultural, organizational and technological changes in the cases studied.

The research was qualitative, exploratory and descriptive, with ethnographic case studies being carried out in: Hospital Austral and Hospital Italiano de Argentina; Hospital Obrero and Hospital Odontológico UDABOL, corresponding to Bolivia; and various institutions in Colombia. To carry out the cases studied, in-depth interviews were conducted in Argentina and Bolivia, a questionnaire was applied in Colombia, and observations were made in Argentina and Bolivia, as well as interviews with expert Shafid Ahmed (2018).

CONCEPTUAL FRAMEWORK

Exponential medicine and telemedicine in Argentina, Bolivia and Colombia

The World Health Organization (WHO, 2016, pp.12) defines telehealth or telemedicine as "the provision of health services, where distance is a critical factor, by all health professionals, using information and communications technologies with the aim of offering information for the diagnosis, treatment and prevention of diseases and injuries, research and evaluation, and continuing education for health professionals, all in favor of the advancement of health of individuals and their communities". Telemedicine is based on the pillars of: Patient access to the best care available; Equality in medical care; and Quality in every treatment decision.

Technologies advance exponentially and are transforming healthcare centers (Kraft 2011), hence the name "exponential medicine", that is, the medicine sector becomes an information science, and therefore it advances exponentially. However, there are still organizations that are not mature enough to face digital transformation (DT), that is, apply ICTs (Nayak, S., Nayak, Vc & Menezes, 2012) and other technologies such as nanotechnology, biotechnology and neurotechnology for various reasons.

Among these reasons, there is the need for a digital medical history, a factor that is hindering its implementation because most patients do not have it. Also, for doctors it is tedious to prepare them, since it demands between 60 to 70% of the time of a routine consultation. On the other hand, for telemedicine to work, in addition to digital medical records, it is necessary to have connection interfaces for data transmission, which are very diverse due to the number of software development companies dedicated to this. And finally, another question to consider is how the patient is involved in the dynamics of telemedicine. Telemedicine shows the importance of considering the perspective of the user / patient in the development of their

empowerment during medical processes. However, telemedicine transfers the responsibility of healthcare personnel to patients, which can be a challenge for professionals, patients and families when responsibility and treatment are transferred from the clinic to the home (Nielsen & Johannessen, 2018).

During 2019, 158 hospitals have been created online based within the trend of digitization of services as well as investments in Artificial Intelligence (AI) and equipment for telemedicine (Yirán, 2018). An example of these advances can be seen in China, where the remote diagnosis of the coronavirus is done through the use of drones and 5G. Telemedicine also allowed the virus to be decoded and sent to the world's infectious disease centers through the networks.

Taking into account the categorization of the Inter-American Development Bank (IDB) with respect to public health policies, table 1 describes the main aspects of the health system in which exponential medicine will be developed for Bolivia countries (Group A); Colombia (Group B) and Argentina (Group C).

Table N ° 1: State of health situation for Argentina, Bolivia and Colombia

SITUATION IN STUDIED COUNTRIES
GROUP A: BOLIVIA **3**,900 health centers distributed in: • 3,315 first-level: first care, outpatients, hospitalization without complexities • 390 second level: specialties and general surgery • 195 third level: greater complexity, with specialists. Investment of 4% GDP (2015) Access to the health system through: a) Public sector: they are not insured in social security, they pay for consultations, analyzes, surgeries, etc. They pay the costs, the rest is absorbed by the State. b) Social security affiliation: they contribute 10% of their monthly income. They can be attended at the Health Banks c) Attention in private services or centers without state subsidy. Precarious, insufficient infrastructure, low hygiene and safety conditions 50% of the equipment is obsolete, they receive 400 requests for care per day and they do not cover them Less than 40% of the population has health insurance, whether public or private. Low amount of health human resources: doctors, nurses, assistants, and administrators (2016 had 871 people for all reasons).
GROUP B: COLOMBIA General System of Social Security in Health (SGSSS), organized in two groups: a) People of the contributory regime (RC) who are those who affiliate themselves through contributions of their own or their employers to the Health Promoting Entities b) People from the subsidized regime (RS), in this case an Identification System for Beneficiaries was created in order to identify those who depend on the subsidy to access the health system. It has a Mandatory Health Plan (POS), the difference is that the RCs have a broader health offer. 1.9 doctors per 1,000; in rural areas the ratio is 0.6 / 1,000. In nurses it is 1.1 / 1,000 inhabitants

| 92,470 doctors in 2016. Poor distribution: concentration in urban centers, large cities. |
| Poor teaching quality, only 26 Faculties out of 60 are accredited. |

GROUP C: ARGENTINA
3.2 beds per 1000 inhabitants, country average. In CABA it is 7.3 per 1000 inhabitants and Misiones 1.1 beds per 1000 inhabitants (Pan American Health Organization, 2017).
One hospital for every 1,683 inhabitants.
They receive the largest influx of foreign patients: 60% are foreigners
55% hospitals are private, with large gaps in the country. In Santiago del Estero 18% are private and in CABA 79% are.
It has a National Telehealth Plan and Health Network that communicates both online and deferred
Investment between 9% and 10% of GDP
In a generic way, the health system is organized in three subsectors:
• Public Sector: serves those without coverage
• From Social Security: attends to those who have social works
• Private: Serves those who have prepaid.
The ratio is 3.96 doctors per 1000 inhabitants. But the distribution is very bad: 13.12 in CABA and 1.96 in Chaco (Galinsky, 2018)
25,383 health professionals in 2016.

Source: own elaboration

Table 1 shows that each country has a different health system, but in all three the State is present to finance part or all the healthcare system, basically for those who do not have coverage of any kind. Regarding infrastructure and health professionals, differences are important between countries. Bolivia is the one in the worst situation, and Argentina the best. In the countries, the geographical distribution of health centers and health professionals is uneven, that is, it is concentrated in urban centers with little attention in the most remote areas, in rural areas. Likewise, in all countries are implementing actions aimed at telemedicine and exponential medicine.

Digital Transformation (DT) applied to healthcare
Health systems are under pressure due to the demand for quality and accessibility to health care caused by the aging population, lifestyles, demographic issues, shortage of health personnel, and patient-centered care (Mars, 2013; Saliba et al.; 2012).
In this sense, telemedicine complements the existing health systems, making more people access healthcare, favoring the exchange of information between health providers, providing quality assistance, improving the costs and effectiveness of organizations (Ekeland, Bowers and Flottorp, 2010). On the other hand, telemedicine improves health care as a result of the

shortage of medical professionals (OECD 2016) allowing to reach the objectives of the hospitals of the XXI century.

The most disruptive thing that telemedicine proposes is the co-construction of people's health (Miscione, 2007). Hence, telemedicine must consider local social contexts and their diversity when applied.

The connected organization model pursues the development of a process and operations architecture that allows connecting the front, middle and back-end, in order to provide an outstanding patient experience, without neglecting the agility, efficiency and optimization of resources. Managing the organization under this model requires evaluating the maturity of the organization in terms of 6 critical pillars of digital transformation.

1) Internal Processes: it seeks not only to know and implement automation tools (Robotics Process Automation; IA, Congnitive Automation, among others), digitization and reading of documents, but also the optimization and reuse of customer data seeking to optimize times and make the routine tasks of the company more efficient.

2) Training: invest in the training and labor relations of its workers, seeking formulas that allow a direct impact on employee productivity and more in line with the organization's strategy.

3) Patient experience: in the path of digital transformation, the patient experience takes on singular importance. To do this, internal processes must be transformed and optimized with the patient in mind, eliminating repetitive data, unnecessary roles, and trying to identify benefits so that they feel that everything is done for their well-being and benefit when contracting a service. The use of online channels (eg: web and mobile) is key.

4) Data strategy: it is key for the processes and the patient experience to be successful in the digital transformation. This strategy should consider being able to obtain traceability and automation of all the data that enters the organization's system.

5) Health Service Strategy: senior management must seek a fundamental modification in the value proposition of an organization, in the form of competition and main operations. It is not an easy process and internal resistance is likely to emerge.

6) Talent Management: in a VUCA environment (Volatile, Uncertain, Complex and Ambiguous) the challenge of digital transformation will be highly focused on talent management because the value of an individual will be directly linked to his ability to add

differential value to their tasks. So, the challenge is to identify that talent in the people that recruit and train those who are called on in the new digital needs.

To complete the DT, the health service model must have (Chao, 2017): 1. A comprehensive digital strategy, which must integrate the necessary interoperability standards, in order to be able to deliver, exchange and use the information generated. 2. People and systems that allow learning and unlearning. 3. A change of mindset, since it is not only a technological change. The challenge of these horizontal teams is found in the lower hierarchy, self-organization and in decentralized decision making, which brings speed and greater learning. Everything focuses on those tasks in which the patient finds value (Ford, Compton, Millett and Tzortzis, 2017).

The importance of KM in healthcare

Over several decades, knowledge management (KM) has been demonstrating the importance of knowledge in the organization as it is presented as an answer that goes beyond knowledge itself to become a strategic tool for the organization. On the other hand, the understanding of knowledge as a competitive advantage has been affirmed in its beginnings as a discipline by authors such as Nonaka and Takeuchi, (1995), North and Rivas (2008) among others, who coincide in asserting intangibles as the source of greater creation of competitive advantages and therefore better profitability (Tecce, Pisano & Shuen 1997; North and Rivas, 2008).

The exponential growth of technology shows, ultimately, what the knowledge created and distributed can do in medicine: a true paradigm shift where the integration of biomedicine in information technology, creating a digital medicine is passed. The digitization of data and images allows the connection of specialists to make decisions and carry out diagnoses and operations, among other things, without precedent.

The current trends and factors that influence the generation of knowledge show different contributions (North & Rivas 2008) that indicate the redefinition of KM components for the 21st century. For the purposes of this work, the concepts of tacit and explicit knowledge from Nonaka and Takeuchi (1995) and the ladder of knowledge from North and Rivas (2008) will be taken.

For DT, it is required to generate knowledge through obtaining the best results from each activity and process. For this, the tasks, competences, results, agents, roles and functions

must be analyzed; that is, the operation of an organization and its structures. Knowledge that exists explicitly and that can be available and used beyond individual people or groups of people is valuable and useful for the organization (Freire, 2018, North & Rivas, 2008).

To generate knowledge, it is important not only to have technological support, with external virtual communication networks (Internet) and internal (intranets); but it is also important to count with the training of human resources. North and Rivas (2008) designed the knowledge ladder to identify the different stages of KM evolution according to the structure and level of technology development.

The knowledge ladder shows four degrees of knowledge maturity: At the first level are information and technology (IT) solutions. The structure of the information and communication promote transparency to such information through access to documents and data reservoirs. Here are the companies where knowledge management has been based on information and communication technology.

The second level is the individual solutions specific to each problem area, each business unit. The third level of the knowledge chain refers to organizations that exceed the limits of departmental or business units that show characteristics such as: communication and information infrastructure with written processes and organizational responsibility for content; encouraging employees to share knowledge; the integration of knowledge management in business processes and organization by project; support for the exchange of knowledge through communities of practice and finally the measurement of knowledge. The last degree of maturity of the KM refers to the culture of knowledge that is supported by both the infrastructure and the managers.

In the health sector, KM had a late adoption (Kothari et al., 2011), it has recently gained an interest by health academics, since the adoption of KM strategies in this sector is beneficial for all the actors involved: patients, employees, organizations; providers; public health.

METHODOLOGY

Under a qualitative paradigm, which involves much more than specific data collection techniques, a type of descriptive research was carried out with case studies (Yin 2011, Flyvberg 2006) of health organizations in Argentina, Bolivia and Colombia.

A methodological triangulation of instruments was carried out that, as expressed by Cook and Reichardt (1986).

The instruments for triangulation were: interviews with TD leaders of the cases studied, interview with an international expert, questionnaires, observations. The field work was organized as follows:

• Eight cases of health institutions; 1. Argentina: Hospital Italiano, Hospital Austral IAE, 2. Bolivia: Odontological Hospital UDABOL, Hospital Obrero La Caja de Santa Cruz de la Sierra, in addition to these mentioned institutions, on-site observations were made. 3. Colombia: four cases were studied through the UAB Health Area. One of the cases was the Sagrado Corazón Hospital.

• Seven interviews with the DT leaders of each health institution in Argentina and Bolivia

•Two interviews with experts. Shafi Ahmed from London Royal Hospital and Horacio Cuervo Senior Developer at AI and Watson at IBM Health

The interview was designed on the dimensions of the KPGM model and others referring to DT and the stages of digital transformation in service areas and included 45 guiding questions. Among the topics that were investigated, there were the stages of technology adoption, the structure and culture for telemedicine, the business model, the necessary skills and talent, the measurement of results, patient / user satisfaction, response time, the information system and the use of platforms for interoperability and scalability of proposals. In the case of the Hospitals of Colombia, a questionnaire of nine questions was applied, which was administered by Dr Eduardo Carrillo of the UAB. For its elaboration it was included semi-structured questions and in order of difficulty. The questions concentrated on each of the various dimensions studied. It was sent to the referents of DT in health in Colombia.

The objective of the observations made in Bolivia (UDABOL Dental Hospital and the Hospital Obrero de la Caja with applications in telemedicine) was to make on-site contact about the reality of telemedicine in these particular centers and in Santa Cruz de la Sierra and Bolivia in general.

It was very important for the research team to be able to make contact, visit the facilities and dialogue with the leaders who are carrying out the UDABOL Hospital project, which was thought to be the first digital hospital in Bolivia. This experience allowed them to determine the steps priors to prepare health organizations for telemedicione.

Observations were also made at the Hospital Italiano and Hospital Austral IAE and participated in two days of Telemedicine conferences, some organized by Hospital Italiano and others by Hospital Austral. In the first one, the research team participated through an exposition.

RESULTS

In all the institutions included in the field study, the importance of KM can be seen through teamwork, agile methodologies and knowledge processes as drivers of DT. According to the maturity grades of the KM (North, 2008), the organizations in Argentina are at a level 3 and 4 of the KM in terms of telemedicine. The UDABOL Dental Hospital is also at a level 3 approaching a level 4, while the Hospital Obrero is at a level of interrelation of information and knowledge (level 2 and 3), and the Colombian institutions studied are also in such situation.

With respect to human resources for DT, it was identified that the presence of a digital leader favors for all the DT processes to be integrated and achieved, in the search of the personnel to unlearn the traditional model of medicine and learn the new model. In the most effective cases there was a medical leadership towards DT, and that was a constant in the most advanced organizations studied. While you can count on an IT department, the leadership for DT should be done by highly trained medical IT leaders.

In all the cases studied, different practices aimed at achieving interdisciplinary teamwork were observed. In the cases studied in Argentina and Bolivia, there were no barriers that prevented the development of DT; however, the Colombian experts exposed some difficulties when it came to implement the change.

Regarding internal processes and data strategies, the organizations studied started with DT and digitization in a different way, either adapting third-party systems or creating their own, both proposals were effective.

Different levels of digitization were observed. The Hospital Italiano and Austral hospitals (Argentina) and the UDABOL Dental Hospital (Bolivia) presented a total digitization while the cases of Colombia and the Hospital Obrero of Bolivia were initiated by the images and the patient-medical communication processes, this stage must be related to the application of international communication and technical protocols and standards.

Internal and external interoperability was an aspect considered by all institutions as well as the creation of an ecosystem for change. With respect to the organizations studied, the study identified that they operate at two speeds, one referring to technological advances that impact the health industry (robotics, IOT, 3D printers, smart remedies, etc.) and another referring to bureaucratic organizational aspects with slower, isolated or little linked health service and business processes.

The difference in organizational rhythm means that each of these must be taken into account in the corresponding part and that it is not a barrier for the establishment of the DT. The application of models facilitates the articulation and coupling of both speeds. International experts like Shafi Amed expressed that digital integration implies the use of IoT, Big Data, Machine Learning, augmented virtual reality, 3D printing, robotics. This integration is beginning to create everything that is going to change in medicine, and it is the factor of change. The 21st century hospital need to have a digital and multidisciplinary culture where human capital continues to be the key interface of the entire system.

According to the Lorenzo Ochoa (2016) model, in the cases studied, it was observed that both the Hospital Italiano and Austral hospitals (Argentina) and the UDABOL Dentistry (Bolivia) have leaders involved in the process of transforming the skills of their staff towards digitization, with trajectory in the two previous dimensions. For its part, the Hospital Obrero in Bolivia is in the dimension of experimentation, that is, the first one. They are experimenting with new technologies, looking for opportunities for improvement, in order to add value to the patient. And in the case of Colombia, they are at the intermediate level, of development and deployment, because they begin to respond more quickly to changes, promote the training of their people, and also make communication more fluid.

DT requires working in ecosystems that help accelerate access to talent, capabilities, and technologies, that is, developing agile organizations through the use of existing resources. The commitment of transformation leaders is to provide solutions granting greater satisfaction to patients / users. It also requires training of employees, investing in learning, improving skills in digital transformation through workshops, courses, conferences, among others.

The patient's experience was placed at the center of management, and in all cases the best access available is taken into account; in the cases of Argentina and UDABOL Dental

Hospital, communication was made through Tablets and mobile. On the other hand, in the cases studied in Colombia, it emerged that in one the chatbot was used. Institutions and the doctor must work to develop an omnichannel strategy: that is, all the multiple forms of communication by which the patient could access health information through mobiles, tablets, PCs. The main result of this integration made it possible to determine that the patient is an active digital subject in these institutions and was integrated into the organization from the human and technical perspectives and scale of the organizational system.

The telemedicine practices present in the cases were clinical history, electronic prescription, images and teleconsultations. Likewise, in the Hospital Italiano, robotics is used through the DaVinci device for surgeries. In the case of the Hospital Austral, 3D printing and digital navigation are used for trauma operations.

Finally, it is necessary to reflect on the competencies of the doctor and health personnel for the 21st century, from training and study with the technologies that will later have to be applied, to favoring a rapid assimilation of new ways of doing things where the doctor is an articulator of technologies that will allow a faster and safer diagnosis or treatment and with fewer errors.

CONCLUSION

The technologies are advancing exponentially and are transforming health centers (Kraft 2011), but there are still organizations that are not mature enough to face DT for different reasons. Telemedicine has different branches, which are developing both in first world countries and in Latin America. One recommendation, which is a challenge for the region and in turn makes it difficult to implement telemedicine, is to have a digital medical history, something that most patients do not have. This means that from routine consultations 60 to 70% of the time, doctors dedicate it to carrying it out. And even when medical records are already digitized, there are multiple interfaces and formats for the number of software development companies are dedicated to this, which also interferes with digitization. Another question to consider is how the patient is involved in the dynamics of telemedicine.

On the other hand, DT is a continuous and complex process, is multidimensional, is related to various factors, such as the socio-economic and technological factors that transcend a health organization. Perhaps the most disruptive thing that telemedicine proposes is the co-

construction of people in their healthcare, Miscione (2007). Hence, telemedicine must take into account local social contexts and their diversity when applied. It can be said that telemedicine could improve health care, the shortage of medical professionals (OECD 2019) allowing to reach the objectives of the hospitals of the XXI century: Access, Equality, Quality and Information. New capabilities are required where the organization must focus on creating end-to-end value, being a key dimension in the transformation process the people and the organizational culture for knowledge management.

The institutions studied in this work, are carrying out the DT with different levels of difficulty. According to the maturity grades of the KM (North 2015), it has been possible to identify that the organizations in Argentina are at a level 3 and 4 of the KM in terms of telemedicine. For its part, the UDABOL Dental Hospital is also at a level 3 approaching a level 4, the Hospital Obrero at a level of interrelation of information and knowledge (level 2 and 3), in the same situation are the institutions from Colombia studied.

With respect to human resources for DT, it was identified that the presence of a digital leader favors that all the processes that must be carried out for DT to be integrated and achieved, seeking that personnel unlearn the traditional model of medicine learning the new model. In the cases in which there was medical leadership towards DT the implementation was more effective.

As for the internal processes and data strategies, the organizations studied started with DT and digitization differently, they either adapted systems or created their own and both proposals were effective. Different levels of digitization were observed. The Italiano and Austral Hospitals and the Dental Hospital present a total digitization while in Colombia and the Hospital Obrero de Bolivia they were initiated by the images and the medical patient communication processes, this stage must be related to the application of international communication and technical protocols and standards. Internal and external interoperability was an aspect considered by all institutions as well as the creation of an ecosystem for change. North's level of technological maturity for DT and KM placed Hospital Italiano and Austral at levels 4 and 5, and 2 and 3 in Bolivia and Colombia. Regarding the patient's experience, this was placed at the center of management, and in all cases the best access available is taken into account, in the cases of Argentina and UDABOL Dental Hospital, communication was made through Tablets and mobile phones, in the Colombian cases studied use chatbot. The

telemedicine practices presented in the cases were clinical history, electronic prescription, images and teleconsultations. The robotic practices are performed in the Hospital Italiano with the DaVinci device.

The development of a digital culture for telemedicine implies collaborative innovation management, where new organizational capacities, and new management requirements, have to be developed, aligned to the particular objectives of each organization (Naranjo, Valencia, Oregon and Hernández, 2014). Also, there are different values that must be present at the cultural level.

In order to achieve people, processes and resources to be aligned with the values, objectives and results of telemedicine, it is necessary to present leveraging characteristics or drivers for the development of an innovative culture. These are: adaptability, that is, the ability to contextualize the action and operations to particular environments; cohesion to promote the exchange of ideas and knowledge in pursuit of a common goal; creativity to get away from the usual standards of what to do; participation so that knowledge, ideas and suggestions can be shared and taken into account when implementing changes; teamwork to generate synergies from the exchange of experiences among departments, areas, etc .; cross-functional work that fosters coordination and combination between sectors.

REFERENCES

Accenture. (2017). *Amplyfyou Technology for people. The era of the intellente enterprise*. New York.

Alvertis y Viscusi (2018). La empresa digital. Una nueva forma de empresa surge: tecnología y tendencia de negocios combinados. Future Enterprise EU. En: http://www.futureenterprise.eu/

CENTIC. (2016). Nuevos modelos de negocio en la Industria conectada. MurciaKutscha, J., Ehrenhard, M., & Zalewska-Kurek, K. (2016). What drives Business Model Transformation in Small 33 and Medium Sized Enterprises? University of Twente.

Laloux, F. (2017). *Reinventar las organizaciones.* Editorial: Arpa y Alfil Editores SRL. Barcelona: España.

Chao, E. (2017). ehCOS Adoption Model. Incorporación de las TIC's en el sector salud: Innovar y permanecer competitivos en tiempos de cambios acelerados. Disponible en

http://www.ehcos.com/wp-content/uploads/2017/03/White-paper_Adopci%C3%B3n-de-Tecnolog%C3%ADas-de-Informaci%C3%B3n-en-Salud_2017_ESP.pdf

Congreso SIMI (2019). Semana del Intervencionismo mínimamente invasivo. *Diagnóstico Journal en Latinoamérica*. Disponible en: https://issuu.com/revistadiagnostico/docs/simi-2019

Cook, T.D.; Reichardt; Ch.J. (1986) *Métodos cualitativos y cuantitativos en la investigación evaluativa*. Edit. Moranta. Madrid: España

Dávila, T.; Epstein, M. (2015). *La paradoja de la innovación. Por qué las buenas empresas mueren de éxito y qué hacer al respecto*; Ediciones Urano; Barcelona: España

Ekeland AG., Bowes A., Flottorp S. (2010). Effectiveness of telemedicine: a systematic review of reviews. *International Journal of Medical Informatics* 79 (11): 736-71.

Flyvbjerg, B. (2006), *Five Misunderstandings About Case-Study Research, Qualitative Inquiry*, 12(2): 219-245

Ford, G., Compton, M., Millett, G.; Tzortzis, A. (2017), *The role of digital disruption in healthcare service innovation, in Pfannstiel, M.A. and Rasche, C. (Eds), Service Business Model Innovation* in Healthcare and Hospital Management, Springer International Publishing, Cham, pp. 57-70.

Freire J. (2018). Liderando y aprendiendo en la era de la innovación continua. En Gairin Sallán, J.; Mercader Juan, C. (2018). *Liderazgo y gestión del talento en las organizaciones*; pp. 67-88; Madrid, Ed. Wolters Kluwer

Galinsky, P. (2018). Alta demanda. Salud pública: falta casi el doble de médicos generalistas en todo el país. Disponible en: https://www.clarin.com/sociedad/salud-publica-falta-doble-medicos-generalistas-pais_0_H1XA7JZHm.html

Hatum, A. (2013). *The new workforce challenge. How today leading companies are adapting to the future;* Palgrave McMillan; New York: EE.UU.

KPMG (2019a). CEO Outlook: agile or irrelevant. Redefining resilience. 2019 Global CEO Outlook; Disponible en: https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/05/kpmg-global-ceo-outlook-2019.pdf

Kraft D. (2011). ¿El futuro de la medicina? Hay una explicación para eso. Disponible en https://www.ted.com/talks/daniel_kraft_medicine_s_future/transcript?source=email&language=es. Recuperado el 25 octubre 2019.

Lorenzo Ochoa, (2016). Cultura Digital: Nuevos Comportamientos en la Organización para Maximizar el Potencial de la Tecnología. Recuperado de https://www.linkedin.com/pulse/cultura-digital-nuevos-comportamientos-en-la-para-el-de-lorenzo/?originalSubdomain=es

Lorenzo, O.; Kawalek, P.; Gonzalez, G.; Ramdani, B. (2011): *The Long Conversation: Maximizing Business Value from Information Technologies Investments,* Palgrave MacMillan.

Mars M. (2013). Telemedicine and advances in urban and rural healthcare delivery in Africa. *Progress in Cardiovascular Diseases* 56(3): 326-35

McKinsey &Company (2016). Achieving a digital state of mind. McKinsey & Company, febreaury

Miscione, G. (2007). Telemedicine in the Upper Amazon: Interplay with Local Health Care Practices. *MIS Quarterly,* 31(2), 403-425. doi:10.2307/25148797

Muñoz Zapata, D.; Valencia Rey, J. (2015). Gestión del conocimiento organizacional: un encuentro necesario entre plataformas digitales, comunicación, educación y cultura *Revista Lasallista de Investigación*, vol. 12, núm. 2, 2015, pp. 105-111

Nayak S.; Nayak V.C.; Menezes R. (2012). Telemedicine: The Future of Healthcare. Delivery; *International Journal of Computer Science and Management Research* 1(1):

Nielsen, M. K.; Johannessen, H. (2018). Patient empowerment and involvement in telemedicine. *International Journal of Telemedine and Applications*.

Nonaka, I.; Takeouchi, H. (1995). "*The knowledge creating Company: How Japanese Companies Create the Dynamics for Innovation*". New York: Oxford University Press.

North, K.; Rivas, R. (2008). *Gestión del conocimiento. Una guía práctica hacia la empresa inteligente*. LibrosEnRed

OCDE (2019), *Measuring the Digital Transformation. A Roadmap for the Future.* Disponible en https://www.oecd-ilibrary.org/sites/ef358c61-es/index.html?itemId=/content/component/ef358c61-es

Organización Panamericana de la Salud (OPS) (2017). Rectoría y gobernanza hacia la salud universal. En: Salud en las Américas 2017. Washington, DC: OPS. Disponible en: http://www.paho.org/salud-en-las-americas-2017/?post_type=post_t_es&p=309&lang=es

Acceso el 20 de mayo de 2019. » http://www.paho.org/salud-en-las-americas-2017/?post_type=post_t_es&p=309&lang=es

OMS, 2010. Telemedicine: opportunities and developments in Member States: report on the second global survey on eHealth 2009. (Global Observatory for eHealth Series, 2).

Organizacion Mundial de la Salud. (OMS); Organización Panameriacana de la Salud (2016). *Marco de Implementación de un Servicio de Telemedicina*. Washington, DC: EE.UU.

Saliba V., Legido-Quigley H., Hallik R., Aaviksoo A., Car J.; Mckee M. (2012). Telemedicine across borders: a systematic review of factors that hinder or support implementation. *International Journal of Medical Informatics* 81(12):793-809.

Teece, D.J, Pisano, G.; Shuen (1997). Dynamic capabilities and strategic management. *Strategic Management Journal* 18 (7) 509 513

Yin, R. (2011). *Investigación sobre estudio de casos. Diseño y Métodos*. Sage Publicaciones (2ª ed. Vol. 5) Publications *International Educational and Professional Publisher*. Thousand Oaks London New Delhi.

Yiran, Z. (2018) Los hospitales chinos invierten en su futuro digital. Disponible en http://spanish.peopledaily.com.cn/n3/2018/1127/c92121-9522627.html. Recuperado el 25/10/2019

Kothari AR.; Bickford JJ.; Edwards N.; Dobbins, M.; Meyer, M. (2011) Uncovering tacit knowledge: a pilot study to broaden the concept of knowledge in knowledge translation. *BMC Health Service Research*, Disponible en: https://bmchealthservres.biomedcentral.com/articles/10.1186/1472-6963-11-198 .