Current situation of the general secretary at the Universidad Distrital Francisco José de Caldas in Digital Transformation

Situación actual de la secretaria general en la Universidad Distrital Francisco José de Caldas en Transformación Digital

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Abstract

This article will address the progress of a research related to a methodology for the implementation of digital transformation in the Universidad Distrital Francisco José de Caldas. These advances present the situation of the general secretary regarding digital transformation and the main activities carried out within the area.

Similarly, throughout the article, the importance of the implementation of digital transformation in the entities is justified. Taking into consideration that it is a complex process that involves the integration of technologies and the optimization of processes to achieve greater efficiency. In the specific case of the General Secretariat of the Universidad Distrital, the need to implement a digital transformation framework that allows the automation and standardization of processes, and integration between the different areas of the university has been evidenced.

Keywords: Processes, digital transformation, current situation, efficiency, standarization, technologies.

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Resumen

El presente artículo abordará los avances de una investigación relacionada con una metodología para la implementación de la transformación digital en la universidad distrital francisco José de Caldas. Estos avances presentan la situación de la secretaria general en torno a transformación digital y las principales actividades que se realizan dentro del área.

De igual forma, a lo largo del artículo se justifica la importancia de la implementación de la transformación digital en las entidades. Teniendo en consideración que es un proceso complejo que involucra la integración de tecnologías y la optimización de procesos para alcanzar una mayor eficiencia. En el caso específico de la Secretaría General de la Universidad Distrital, se ha evidenciado la necesidad de implementar un marco de transformación digital que permita la automatización y estandarización de procesos, e integración entre las diferentes áreas de la universidad.

Palabras clave: Procesos, transformación digital, situación actual, eficiencia, estandarización, tecnologías.

1. Introduction

. This article presents the progress of a project that is part of an applied master's thesis. This document is specifically oriented to one of the specific objectives of the research, which refers to the diagnosis of the current situation of the area of the entity in which the project is developed.

In the context of the Universidad Distrital Francisco José de Caldas, digital transformation emerges as an essential premise within the indicative plan, tracing a path towards efficiency and competitiveness in an increasingly dynamic and demanding university environment.

However, despite its unquestionable relevance, a detailed analysis reveals a significant disconnect between this premise and administrative practice, especially in the area of document management.

Indeed, through an interview with experts, it has become evident that digital transformation has not been prioritized during document management at the Universidad Distrital, generating reprocesses and delays in the delivery of the required documentation. This situation is aggravated if we take into account the weaknesses identified in the institution's document management, which include administrative, archival, technological, environmental, legal, financial, physical infrastructure, and human resources aspects. Audits carried out between 2015 and 2023 have revealed backlogs and outdated documents that are more than 70 years old, eroding the institutional memory and the scientific, cultural, and educational legacy.

In this context, the university, as a public entity, faces a crossroads in which the adoption of a digital transformation framework is presented as an imperative need. In this sense, the framework proposed by MinTIC offers valuable guidance, focusing on objectives such as quality in digital services, innovation, security in internal processes, data-driven decision making, citizen empowerment, and the development of smart territories.

However, digital transformation goes beyond the simple adoption of technologies; it implies a profound review of processes, people's mentality, and organizational culture. In this sense, the General Secretariat emerges as a fundamental strategic axis, where it is crucial to generate efforts that allow an efficient transition to a digital model.

In this sense, research related to the implementation of technologies and their incorporation into the processes of organizations has been developed. For this, in research focused on the "review of the literature on the standardization of production processes at the scientific level," the latent need for organizations to implement digital transformation in their processes to ensure their efficiency is evidenced. For this research, questions oriented to methodologies for the standardization of processes, engineering tools/techniques in processes worldwide, and comparisons with business groups that have been successful cases of standardization considering the implementation of transformational technologies were taken up [36].

In another research related to barriers in digital transformation, it is highlighted that, through the application of a survey of 91 company representatives, it is concluded that the success factors related to digital transformation are associated with the general vision of organizations, where functions, processes, and services are impacted, involving innovation and digitalization [39]. Similarly, in research related to the implementation of digital transformation, there is evidence of a 20% to 30% increase in productivity, where benefits are generated that impact social cohesion, welfare, skills and competencies development, and efficiency in activities. Additionally, this article highlights the relevance of methodologies associated with the culture of organizations, so that they are properly appropriated in each of the changes made by collaborators [38].

On the other hand, considering alignment in the education sector, Infodic highlights in its article the state of "comfort" in which many universities in Latin America are, with the realization of maturity assessments that allowed knowing the state of these universities in terms of digital transformation, where the importance of strengthening administrative processes during the

implementation of new technologies was detected, to encourage the management of institutions and their internal processes. Similarly, it links digital transformation to the association of mechanisms that facilitate the student's passage through the university, providing greater flexibility through the provision of different tools [37].

Due to what happened with the COVID-19 pandemic, many organizations accelerated the implementation of new technologies to solve the barriers that arose in the management of organizations. In an article conducted in companies of Barrancabermeja, the strategic reformulation after the accelerated implementation of digital transformation was studied, where the "integration of new organizational designs" provides an approach aligned with the processes, in which new technologies are associated outside the traditional components of the organizations [35].

As mentioned in a study that relates "Digital transformation in Latin America, a need and opportunity to improve higher education." Since the onset of the COVID-19 pandemic, the education industry has been driven towards an accelerated digital transformation. This change, driven by the massive use of information and communication technologies, is profoundly reshaping the educational landscape. Now more than ever, the need for a personalized educational experience that is adaptable to the particularities of each student is recognized. In this context, Latin America is facing a unique opportunity to coordinate efforts and capitalize on the benefits of this new digital era in education, especially at the university level. The essay "Digital transformation in Latin America: a need and opportunity to improve higher education" explores the impacts of this transformation on educational institutions, as well as the challenges and opportunities it presents. It emphasizes that digital transformation is not limited only to

distance or virtual education but encompasses all aspects of teaching and learning, regardless of the model used [10].

2. Methodology

This project is a case study, for which, considering the objectives proposed at the beginning of the document, the research methods can be related as follows:

- **Unstructured interview with an expert with more than 3 years of experience in the General Secretariat:**

Objective: Obtain detailed information about the current situation of the General Secretariat in relation to digital transformation and explore the expert's perceptions and suggestions regarding the implementation of digital technologies in administrative and document management processes.

Interviewee Profile: The interviewed expert has over three years of experience working in the General Secretariat of the Universidad Distrital Francisco José de Caldas. His knowledge and experience are fundamental to understanding the challenges and opportunities in the digital transformation of the entity.

Interview Structure: The interview was conducted in an unstructured manner to allow a more fluid and open conversation, facilitating the interviewee to share relevant information without rigid restrictions. However, a guide of key topics was used to ensure that critical aspects of the research were covered.

Key Topics and Questions:

- **Current status of document management:**

  1. How would you describe the current state of document management in the General Secretariat?

  2. What are the main challenges faced in terms of document administration?

  3. What weaknesses have you identified in the current document management processes?

- **Digital transformation:**

  1. What do you understand by digital transformation in the context of the General Secretariat?

  2. Have there been previous attempts to implement digital technologies in document management? If so, what were the results?

  3. What technologies or tools do you consider would be most beneficial for the General Secretariat?

- **Impact on administrative processes:**

  1. How do you think digital transformation could improve administrative processes in the General Secretariat?

  2. What benefits do you expect to gain from the implementation of digital technologies?

  3. Are there specific areas within the General Secretariat that would benefit more from digitalization?

- **Organizational culture and training:**

1. How prepared is the General Secretariat to adopt a shift towards digitalization?

2. What type of training or skill development would be necessary to facilitate this transition?

3. How could an organizational culture that supports digital transformation be fostered?

- **Planning and resources:**

1. What resources (financial, technological, human) do you think are necessary to carry out a successful digital transformation?

2. What would be a realistic timeline for the implementation of these technologies?

3. What obstacles do you anticipate could arise during the digital transformation process?

Interview Development: During the interview, the expert was allowed to speak freely on each topic, providing a deep and nuanced understanding of the issues and opportunities present. The flexibility of the unstructured interview allowed for the exploration of emerging areas of interest that were not initially planned, further enriching the data collected.

Response Analysis: The expert's responses were analyzed to identify patterns and recurring themes, as well as to extract specific insights that could inform the design of the digital transformation methodology. Qualitative analysis techniques were used to categorize and synthesize the information, ensuring that the expert's perceptions and suggestions were effectively integrated into the final recommendations of the study.

- Design of a customized methodology adapted to the needs of the General Secretariat to impact processes and technologies according to the findings obtained in the current situation.

- Definition of a detailed plan for the implementation of the methodology, including the assignment of responsibilities, deadlines, and necessary resources.

3. Results

The results presented below are an advance of the research on a methodology for the standardization of processes during the implementation of digital transformation in the General Secretariat of the Universidad Distrital Francisco José de Caldas. Related to the current situation of the General Secretariat in terms of digital transformation, from which a greater understanding of the context was obtained, in terms of the processes carried out in the area, stakeholders, and current needs.

3.1 Current status of digital transformation at the General Secretariat

The General Secretariat at the Universidad Distrital is a key figure in charge of multiple responsibilities that ensure the proper administrative and legal functioning of the institution. One of its fundamental roles lies in the preservation and custody of institutional memory, ensuring that the history, records, and documentation of the university remain intact and accessible to future generations. This work not only preserves the institution's identity and legacy but also facilitates research and informed decision-making.

In addition, the General Secretariat plays a crucial role in certifying and disseminating relevant information to the university community and the general public. This involves managing official

documents, responding to requests for public information, and collaborating with other departments to ensure transparency and access to information.

Another fundamental aspect of its work is to advise on the university's legal proceedings, which includes providing legal guidance, preparing legal documentation, and representing the institution in legal proceedings when necessary. Its expertise in legal regulations and procedures contributes to strategic decision-making and the protection of the university's interests in the legal arena [4].

In this sense and according to the expert, document management acquires indisputable relevance in each of the administrative and academic processes of the Universidad Distrital. The correct organization, classification, and conservation of documents guarantee operational efficiency, institutional transparency, and compliance with legal obligations. It also facilitates the consultation and exchange of information among the different strata of the university community, promoting collaboration and academic and administrative development.

On the other hand, the adoption of the Indicative Plan 2022-2025 (Figure 1), presented a strategic vision for the Universidad Distrital. This plan is established as a reference framework that guides the actions and projects of the institution in the coming years. It highlights five fundamental management premises, seven transformative axes that delineate priority areas of action, as well as forty-five action guidelines that guide the implementation of specific policies and programs. Additionally, eighty-seven guiding projects and actions are established, along with one hundred and nine concrete goals that serve as benchmarks for measuring progress

and compliance with institutional objectives. This strategic approach provides a clear and coherent roadmap for the integral and sustainable development of the Universidad Distrital, aligning its efforts with the needs and challenges of the academic and social environment [3].

Figure 1. Indicative Plan
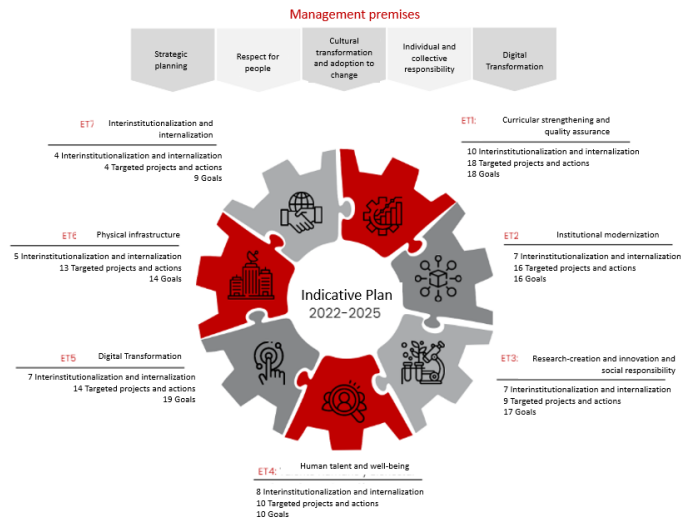
Source: Universidad Distrital

Thus, it is evident that one of the premises that make up the indicative plan is oriented towards digital transformation. According to the interview with the expert, this element has not acquired great relevance during the administration of document management. Similarly, considering the fixed objective mentioned in the interview in which it is taken into account that the document management of the Universidad Distrital Francisco José de Caldas has administrative, archival, technological, environmental, legal, financial, physical infrastructure, and human resources weaknesses, in audits executed from 2015 to 2023, in which backlogs and documentary outdatedness of more than 70 years are detected, "leading to the loss of institutional memory and the scientific, cultural and educational legacy belonging to the general public".

Therefore, it is of great relevance to take into consideration what is mentioned in an article on the challenges of digital transformation in universities. It emphasizes that administrative and academic processes are the fundamental basis for the proper functioning of a university and, therefore, arises the need to integrate digital technology into the processes, procedures, and work culture of an institution. An adequate systematic review of the literature that takes into consideration the existing problems and latent needs is carried out. In this way, with the required holistic vision, a digital transformation process will be achieved [32].

On the other hand, according to a study conducted in Jordanian universities through a descriptive survey oriented on four axes: digital culture, institutional support, infrastructure, insight, and vision. It was identified that, although institutional support ranked first, administrative collaborators had an intermediate value, for which it was of great importance to encourage digital transformation through continuous development and innovation [21].

For this specific case, considering that the university is of a public nature, it is also very relevant to take the digital transformation framework proposed by MinTIC [2] as a guideline. In which it is of great importance to adjust to the objectives stated in the framework, in which it is evident that it does not generate adequate compliance in the following elements:

- Quality in digital services

- Innovation

- Secure internal processes

- Data-Driven Decisions

- Citizen empowerment

- Smart territories and cities

In this sense, it is important to highlight the importance of an adequate incorporation of the different elements that make up digital transformation, where this does not only refer to the incorporation of technologies, but is also reflected in the entity's processes, the people, and the organizational culture [1].

It is also important to consider that the General Secretariat is one of the main strategic areas of the Universidad Distrital. Generating efforts that allow for more efficient processes in the area will ensure that all stakeholders in the university are duly satisfied. The importance of digital transformation in the context of the General Secretariat of the Universidad Distrital lies in several crucial aspects for the efficient and competitive operation of the institution [5].

The implementation of digital technologies allows for the automation of processes, which reduces the manual workload and decreases task execution times. This not only improves efficiency in the General Secretariat but also frees up human resources to devote to activities of greater added value [6].

Digital transformation facilitates integration between the different areas of the university by providing platforms and tools that allow for more effective information sharing. This promotes interdepartmental collaboration and fluid communication, which in turn contributes to more informed and agile decision-making [19]. Additionally, the digitization of processes allows for the establishment of uniform standards and protocols in the execution of tasks within the General Secretariat. This ensures consistency and quality in the provision of services, which in turn improves user satisfaction and strengthens institutional reputation [12].

In an increasingly competitive university environment, the ability to adapt quickly to technological changes and market demands is essential. Digital transformation provides the General Secretariat with the necessary tools to stay up-to-date and competitive, offering high-quality services and responding efficiently to the needs of the university community. In this way, the adoption of digital technologies at the General Secretariat can significantly improve the experience of users, whether they are students, faculty, administrative staff, or external stakeholders. The availability of online services, the ease of access to information, and the ability to perform procedures remotely are aspects that contribute to a more satisfactory experience for all involved [15].

4. Discussion of results

Throughout the article, several key points were revealed about the current situation and the challenges of digital transformation in the General Secretariat of the Universidad Distrital Francisco José de Caldas. First, the crucial role of the Secretariat in document management and the preservation of the institutional legacy is highlighted. This work not only preserves the university's history but also facilitates informed decision-making and transparency.

However, despite the importance of document management, shortcomings are identified in this aspect, especially concerning the adoption of digital technologies. The lack of relevance given to digital transformation has led to reprocesses and delays in the delivery of documentation, which affects operational efficiency and service quality.

The analysis also highlights the importance of integrating digital technology into the university's administrative and academic processes. It points out that digital transformation is not only limited to the incorporation of technologies but also involves changes in processes, organizational culture, and staff training.

The need for greater institutional support and a strategic vision to drive digital transformation at the university is also discussed. It is mentioned that although there is a framework in the form of the Indicative Plan 2022-2025, there are still gaps in its implementation, especially regarding the quality of digital services, innovation, and data-driven decision-making.

Furthermore, the importance of incentivizing digital transformation through continuous development and innovation is emphasized, as well as the need for a systematic review of existing problems and latent needs.

Through the results obtained in the research, we can define that it is of great relevance to design a methodology that encourages the incorporation of technologies in the document management carried out within the area. In this way, it is important to consider the aspects gathered in the previous research presented in the article, in order to address all the elements required to carry out the appropriate transformation of the processes, procedures, culture, and technological infrastructure of the General Secretariat.

5. Conclusion

In conclusion, we can show that the implementation of digital transformation in the General Secretariat of the Universidad Distrital, through the results presented in the article and in the interview with the expert, reflects that there is great potential to improve the administrative processes in charge of the area. Also, it was evidenced that it is of great importance to generate a transformation in which people feel included and adapt to the proposed changes.

However, we have also identified the opportunity represented by the adoption of a digital approach in the General Secretariat. The implementation of digital technologies can not only improve operational efficiency and the quality of the services offered, but can also promote greater integration between areas, standardization of processes, and more informed and agile decision-making.

To achieve a successful digital transformation, it is essential to focus not only on the adoption of technologies but also on transforming processes, training staff, and fostering an organizational culture oriented towards innovation and collaboration. The General Secretariat, in its strategic role within the university, must lead this change and generate the necessary efforts to promote an effective transition to a digital model.

In this sense, it is imperative that the Universidad Distrital prioritizes digital transformation as an integral part of its institutional vision and strategy. This will imply a continuous investment in technology, staff training, review of processes, and a culture of adaptation to change. Only in this way will the institution be able to remain relevant and competitive in a constantly evolving educational environment.

Ultimately, digital transformation in the General Secretariat is not only a matter of technological modernization, but an imperative to fulfill the university's mission of providing quality services and contributing to the academic, scientific, and cultural development of society. It is time to take advantage of the transformative potential of digital technology and lead the Universidad Distrital towards a more innovative, efficient, and service-oriented future.

References

[1] Maliqueo Pérez, C., González Candia, J., Mardones Espinosa, R., & Ardiles Briones, M. (2021). Gestión de personas y las barreras para innovar en la transformación digital. Revista Venezolana de Gerencia.

[2] MinTic. (2020). Marco de la Transformación Digital para el estado Colombiano. Manual de Gobierno Digial, 83.

[3] Oficina asesora de planeación y control de la Universidad Distrital Franciso José de Caldas. (2022). Plan indicativo 2022-2025. Bogotá.

[4] Universidad Distrital Francisco Jose de Caldas. (2023). Manual Especifico de funciones . 118.

[5] Aguirre Mayorga, H. S. (2022). Aproximación metodológica para la innovación y transformación digital de los procesos de negocio. Un caso de estudio. Cuadernos de Administración, 35. https://doi.org/10.11144/javeriana.cao35.amitd

[6] Granda Campoverde, R., & Bermeo Valencia, C. (2022). Transformación digital: propuesta metodológica para la automatización de procesos desde el enfoque del BPM. Revista Científica UISRAEL, 9(3), 47–72. https://doi.org/10.35290/rcui.v9n3.2022.621

[7] Chávez Solís, M. E., Labrada Martínez, E., Carbajal Degante, E., Pineda Godoy, E., & Alatristre Martínez, Y. (2023). Inteligencia artificial generativa para fortalecer la educación superior. LATAM Revista Latinoamericana de Ciencias Sociales y Humanidades, 4(3). https://doi.org/10.56712/latam.v4i3.1113

[8] Carmona Arbañil, C. A. (2023). TRANSFORMACIÓN DIGITAL COMO ESTRATEGIA DE MEJORA EN LAS ORGANIZACIONES. HORIZONTE EMPRESARIAL, 10(1), 157–169. https://doi.org/10.26495/rce.v10i1.2481

[9] Sosa Zuñiga, D. I., Meneses Torres, E., Andrade Villa, C., & Guamán Guamán, R. (2024). Soluciones tecnológicas para la gestión de información en el ámbito universitario. Caso de estudio: Universidad Privada del Ecuador. Qualitas Revista Científica, 27(27), 145–162. https://doi.org/10.55867/qual27.08

[10] Cáceres, D., & Gómez, I. (2023). La transformación digital en Latinoamérica, una necesidad y oportunidad para mejorar la educación superior. Investigación y Pensamiento Crítico, 11(3), 4–11. https://doi.org/10.37387/ipc.v11i3.362

[11]   Ramírez-Montoya, M. (2020). Transformación digital e innovación educativa en Latinoamérica en el marco del COVID-19 | Ramírez-Montoya | Campus Virtuales. Campus Virtuales, 9(2), 2020. Retrieved from http://uajournals.com/ojs/index.php/campusvirtuales/article/view/744

[12]   Aguirre Mayorga, H. S. (2022). Aproximación metodológica para la innovación y transformación digital de los procesos de negocio. Un caso de estudio. Cuadernos de Administración, 35. https://doi.org/10.11144/javeriana.cao35.amitd

[13]   Mohamed Hashim, M. A., Tlemsani, I., & Duncan Matthews, R. (2022). A sustainable University: Digital Transformation and Beyond. Education and Information Technologies, 27(7), 8961–8996. https://doi.org/10.1007/s10639-022-10968-y

[14]   Laorach, C., & Tuamsuk, K. (2022). Factors Influencing the Digital Transformation of Universities in Thailand. International Journal of Innovative Research and Scientific Studies, 5(3), 211–219. https://doi.org/10.53894/ijirss.v5i3.646

[15]   Rodríguez-Abitia, G., & Bribiesca-Correa, G. (2021). Assessing digital transformation in universities. Future Internet, 13(2), 1–17. https://doi.org/10.3390/fi13020052

[16]   Cabero, J., & Llorente, C. (2020). Covid-19: transformación radical de la digitalización en las instituciones universitarias Covid-19: radical transformation of digitization in university institutions. Campus Virtuales, 9(2), 1–10. Retrieved from www.revistacampusvirtuales.

[17]   Ramírez-Montoya, M.-S. (2020). Transformación digital e innovación educativa en Latinoamérica en el marco del COVID-19. Campus Virtuales, 9(2), 2020. Retrieved from www.revistacampusvirtuales.es

[18]   Safiullin, M. R., & Akhmetshin, E. M. (2019). Digital transformation of a university as a factor of ensuring its competitiveness. International Journal of Engineering and Advanced Technology, 9(1), 7387–7390. https://doi.org/10.35940/ijeat.A3097.109119

[19]   Gaete-Quezada, R. (2023). Strategic challenges of digital transformation for state universities. A university social responsibility. Profesorado, 27(2), 1–22. https://doi.org/10.30827/profesorado.v27i2.23452

[20]   Arrabal, A. K., Cardoso, R. S., Wiggers, V. R., & Colombo, A. P. (2022). Digital transformation in university technology expo. Revista de Administracao Mackenzie, 23(5). https://doi.org/10.1590/1678-6971/eRAMR220093.en

[21]   Alsayed, K. W., & Alassaf, H. A. (2023). The Reality of Digital Transformation at Jordanian Universities from the Perspective of Administrators. Asian Journal of Probability and Statistics, 24(4), 35–57. https://doi.org/10.9734/ajpas/2023/v24i4533

[22]   Akhmetshin, E. M., Safiullin, M. R., & Elshin, L. A. (2019). Digital Transformation in the Strategic Development of A University. International Journal of Engineering and Advanced Technology, 9(1), 7395–7398. https://doi.org/10.35940/ijeat.A3099.109119

[23]   Ramírez, M. R. (2021). Digital transformation in the universities: Process in the time of covid 19. RISTI - Revista Iberica de Sistemas e Tecnologias de Informacao, 2021(E42), 573–582.

[24]   Ikenwe, I. J., & Udem, O. K. (2022). Innovative Digital Transformation for Dynamic Information Service Sustainability in University Libraries in Nigeria. Folia Toruniensia, 22, 67–86. https://doi.org/10.12775/ft.2022.004

[25]   Doering, C., Reiche, F., & Timinger, H. (2021). Digital transformation of transfer in universities. In Proceedings of the 18th International Conference on e-Business, ICE-B 2021 (pp. 109–115). SciTePress. https://doi.org/10.5220/0010571801090115

[26]   Afaishat, T. A. L., Khraim, H., & Al-Maadhedee, M. (2022). Effect of network strategic capabilities on digital transformation in Jordanian universities. Problems and Perspectives in Management, 20(3), 247–258. https://doi.org/10.21511/ppm.20(3).2022.20

[27]   Kerroum, K., Khiat, A., Bahnasse, A., Aoula, E. S., & Khiat, Y. (2020). The proposal of an agile model for the digital transformation of the University Hassan II of Casablanca 4.0. In Procedia Computer Science (Vol. 175, pp. 403–410). Elsevier B.V. https://doi.org/10.1016/j.procs.2020.07.057

[28]   Kuzu, Ö. H. (2020). Digital transformation in higher education: A case study on strategic plans. Vysshee Obrazovanie v Rossii, 29(3), 9–23. https://doi.org/10.31992/0869-3617-2019-29-3-9-23

[29]   Omar, A., & Almaghthawi, A. (2020). Towards an integrated model of data governance and integration for the implementation of digital transformation processes in the Saudi Universities. International Journal of Advanced Computer Science and Applications, 11(8), 588–593. https://doi.org/10.14569/IJACSA.2020.0110873

[30]   CUBUKCU, C., & AKTÜRK, C. (2020). DIGITAL TRANSFORMATION TO UNIVERSITY 4.0: A ROADMAP. Uludağ University Journal of The Faculty of Engineering, 25(3), 1391–1408. Retrieved from https://dergipark.org.tr/en/pub/uumfd/issue/57911/702617

[31]   Sandhu, G. (2018). The Role of Academic Libraries in the Digital Transformation of the Universities. In IEEE 5th International Symposium on Emerging Trends and Technologies in Libraries and Information Services, ETTLIS 2018 (pp. 292–296). Institute of Electrical and Electronics Engineers Inc. https://doi.org/10.1109/ETTLIS.2018.8485258

[32]   Coral, M. A., & Bernuy, A. E. (2022). Challenges in the digital transformation processes in higher education institutions and universities. International Journal of Information Technologies and Systems Approach, 15(1). https://doi.org/10.4018/IJITSA.290002

[33]   Sanchez, M. A. (2020). University E-readiness for the Digital Transformation: the Case of Universidad Nacional del Sur. Revista Gestão & Tecnologia, 20(2), 75–97. https://doi.org/10.20397/2177-6652/2020.v20i2.1848

[34]   Ipatov, O., Barinova, D., Odinokaya, M., Rubtsova, A., & Pyatnitsky, A. (2020). The impact of digital transformation process of the Russian University. In Annals of DAAAM and Proceedings of the International DAAAM Symposium (Vol. 31, pp. 271–275). DAAAM International Vienna. https://doi.org/10.2507/31st.daaam.proceedings.037

[35]   Espinosa Díaz, Y. S., & Duque Cruz, O. Y. (2022). Reformulación estratégica mediante la transformación digital en tiempos de crisis: empresas de Barrancabermeja. Apuntes Contables, (30), 141–164. https://doi.org/10.18601/16577175.n30.10

[36]   Espíndola Pérez, M. Á., & Hernándezgonzález, J. C. (2020). Revisión de la literatura sobre la estandarización de procesos productivos a nivel científico. Academina Journals, 12(6), 290–295. Retrieved from https://ciateq.repositorioinstitucional.mx/jspui/bitstream/1020/426/1/Revision de la literatura sobre la estandarizacion.pdf

[37]   IDC infodoc. (2019). Madurez de las universidades latinoamericanas en la Transformación Digital. IDC Latin America Integrated Marketing Programs, 15. Retrieved from https://info.microsoft.com/rs/157-GQE-382/images/LA17021_IDC Latin America_InfoDoc_Education 2017_Microsoft -ESP_MGC0001638.pdf

[38]   Balderrama (2021), Transformación digital y organizaciones ágiles , recuperado de: https://dialnet.unirioja.es/servlet/articulo?codigo=7274241

[39]   Pérez M, González C(2021). Gestión de personas y las barreras para innovar en la transformación digital