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Managing Digital Transformation: A Case Study in a Higher Education Institution

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Abstract: The new paradigms derived from technological innovations lead to the digital transformation of organisations. Higher Education Institutions cannot ignore these changes, which affect them like any other organisation, but especially because of their activity: training professionals who need to learn to manage and lead organisations in this new information society. This article aims to identify the main factors that can drive and facilitate the digital transformation of Higher Education Institutions from the point of view of internal stakeholders. In terms of methodology and due to the complexity of this phenomenon, the case method was considered the most appropriate for this study. As the results show, it is necessary to implement technological innovations according to the needs, establish adequate channels to communicate the process and transform the current traditional culture into a digital one. Data-driven decision-making and the development of a participative leadership style will allow the organisation to adapt to changes over time. It will also enable the retention of digital talent, which is critical to the success of the organisation's transformation. This will ensure the development and survival of the institution.

Keywords: digital transformation; higher education institutions; internal stakeholders; case method; digitisation; participatory leadership

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1. Introduction

Information and communication technologies (ICT) are bringing about a radical change in different areas of our daily lives: personal relationships, working methods, leisure, and the acquisition of new knowledge. Some authors call it the Fourth Industrial Revolution 4.0, in which ICTs are the real engine driving organisations towards new forms of leadership and management [1].

Organisations must digitally transform themselves to survive in this new context [2]. This is a necessary process for organisations that intend to lead change and maintain a competitive position in the sector in which they participate. In the case of Higher Education Institutions (HEIs), their activity in this transformation will influence the development of human capital and talent [3].

The biggest challenge facing organisations is to develop the capacity to increase creativity and innovation based on engaged professionals working collaboratively within a new business culture [4]. Thus, digital transformation (DT) will involve changes in both individuals and organisations. Digitalisation is defined as the incorporation of digital technologies in all the activities and processes that an organisation develops and that allow the development of new business models, as well as transforming and altering existing models,

improving the customer experience, and facilitating innovation and value creation [5]. To achieve this, having the right digital talent within HEIs is particularly relevant due to the idiosyncrasies of their activities, related to the training of future professionals, who need to have the right competencies to understand this change and become generators of this transformation in their future organisations and institutions [6].

This process also implies the transformation of organisations, which will generate some resistance from their professionals [7]. Given the wide-ranging impact of digitalisation, companies must face the changes with a systemic approach that involves different stakeholders [8].It is the responsibility of leaders to control the factors that are considered essential in the process: establishing adequate internal communication channels and involving human resources [9].

Unlike other organisations, HEIs face a special challenge. On the one hand, they must transform themselves, incorporating the advantages offered by new technologies that allow them to develop advantages over their competitors. On the other hand, they are responsible for training the professionals who will be the future managers of their own organisations in this new environment [10].

The aim of this article is to analyse the factors that contribute to reducing resistance to change and facilitate the adoption of new tools, processes, and methodologies during the DE process in HEIs. Therefore, this study aims to provide effective practices that can help HEIs in this transformation process, filling a gap in the literature on this topic.

As this paper shows, the development of new learning processes, proper internal and external communication, the establishment of adequate data collection systems to facilitate decision-making, and participative leadership oriented towards the management of the new professional profiles are the main factors influencing the DT process in HEIs.

This article is structured in seven sections. The Section 1, the introduction, contextualises the topic under study. Then, a theoretical framework related to TD and its application to HEIs is developed in the Section 2. The Section 3 deals with the methodological procedures adopted in this research. Then, the Section 4 presents the results of the research. The Section 5 presents Discussion and Conclusions. The Section 6 Resarch Limitations and finally, some Future lines of Research will be presented and proposed in the Section 7.

2. Literature Review

The process of technological innovation is facilitating the availability of digital tools that help automate processes and provide new information systems to assist in decision-making. These new tools are having an impact on business models and making it possible to incorporate business intelligence systems. With these systems, accompanied by new, more agile organisational methodologies, it is possible to achieve organisations that are more flexible to changes in the environment [10].

Companies often define technological innovation strategies based on the development and use of ICTs, focusing on infrastructure management [11]. However, this has a very limited impact in terms of creating new scenarios and new value propositions.

In an increasingly dynamic environment, innovation is becoming more and more critical to build new propositions that differentiate organisations from others [12]. Organisations are therefore driven not only to innovate, but also to change the way they innovate. This change has been brought about by the rise of new internet-based technological tools, which have made it possible to tap into a greater number of distributed knowledge sources more quickly, cheaply, and efficiently [13]. Moreover, they have considerably increased the capabilities of organisations to develop new competitive advantages.

In this way, we will be able to establish the most appropriate strategies to integrate, coordinate, prioritise, and implement the necessary transformations. In addition to the incorporation of these technologies, a cultural change is required on the part of organisations, using new ways of thinking and working. This new scenario requires redefining business models and the value chain [6].

Business DT can be defined as the modification of business processes, procedures, capabilities, and policies necessary to take advantage of the changes and opportunities presented by new digital technologies, as well as the impact they have on their environment, always thinking about both current and future trends [14]. It thus refers to an organisation's ability to adapt, respond, and position itself for success in the face of rapidly evolving technology [15].

For a proper transformation, it is very important to establish a strategy that serves as a central concept to integrate, coordinate, prioritise, and implement the necessary changes to achieve the appropriate technological innovations for process automation. This leads to the concept of digital business strategy, defined as "the organisational strategy formulated and executed by leveraging digital resources to create differential value" [16].

The new technological tools will provide a greater amount of data, both internal and external, when it comes to always managing organisations in a more appropriate and agile way. It is a complex and difficult process, but necessary if we want to ensure a differentiated position in the market with guarantees of success. With this mentality, it is more important to achieve maximum speed of change and innovation than to focus on minimising risk and failure [17].

The organisation must address the strong impact that these changes can have on its human resources. The World Economic Forum [18], shows that new technologies will replace manual and repetitive tasks performed by people. This is leading to rapid changes in the skill sets and competencies of workers, who will need to be trained to perform functions that add value to these tasks. Among these new skills, those of a social nature (persuasion, emotional intelligence, and communication skills) will be more in demand than strictly technical ones (programming, operations, or team control). Involved, committed, and collaborative professionals will be essential in an innovation-oriented organisational culture. Therefore, one of the biggest challenges for organisations is the need to provide themselves with this type of talent by training and retaining their employees, as well as recruiting new ones [4].

We are thus faced with a disruptive change that will affect all organisations and their professionals [19], which may generate resistance for emotional, cognitive, and behavioural reasons. To reduce them, it is necessary to define an appropriate strategy to address them, with leaders being responsible for clearly communicating the need for change and encouraging professionals to participate in the project. Furthermore, by reducing resistance, the organisation's performance throughout the process will increase [20].

Organisations are thus facing massive changes in work and leadership design [2]. New job profiles are needed that are adapted to the new positions and which in turn demand a new type of relationship-oriented leadership: more teamwork, more networked structures, and a greater need for training.

The skills, knowledge, and competencies of an individual or social group when interacting with digital technologies are described as employee digital literacy [21]. This form of literacy, together with the interactions between them, increases the possibilities of automating processes and freeing up resources that can be used to create new value propositions for the organisation.

The adoption of new methodologies, processes, and technologies tends to be uneven, depending on the age of the employees. As a rule, with some exceptions, this process tends to be more reluctant for those who have been in the organisation for longer, as it pushes them out of their comfort zone. On the other hand, people who have been in the organisation for less time, although they may find it easier to incorporate these methodologies, processes, and technologies, still need to internalise the culture and values that experience brings [22]. Therefore, to facilitate intergenerational cohabitation, the concept of reverse mentoring [23], understood as the pairing of a younger, junior employee, who acts as a mentor to share his or her technological skills, with an older employee with extensive experience in the company, becomes important.

The availability of information is another factor that tends to slow down digital transformation processes, as it is seen by certain members of the organisation as something valuable that needs to be preserved. This makes different departments reluctant to share it and leads to the creation of "silos" or watertight structures that do not share this information, believing that they will lose power if they do so. This hinders a global vision of processes, which is necessary to incorporate new digital tools that can automate processes and, above all, collect data. To avoid this problem and encourage the exchange of information, the creation of interdepartmental working groups is a very useful tool [15].

In today's knowledge society, education plays a decisive role both in the transfer of scientific and technological knowledge, and in the development of analytical and professional skills. The digital economy affects the higher education sector by linking the economy based on digital developments and applications with the university teaching and learning process. HEIs are increasingly aware of the need to adapt to the changing environment generated by the development of new technologies [24].

One of the obstacles to the application of technology in HEIs is that the importance of incorporating new processes and tools that facilitate the administrative and commercial management of HEIs is not sufficiently considered. Systems such as Learning Management Systems and, in this case, Canvas, are tools that facilitate academic management by reducing costs and increasing benefits for both teachers and students [25]. It should be considered that DT also has an impact on the economic growth of Higher Education Institutions, streamlining their operations and reducing costs and energy, therefore also increasing the profitability of university campuses [26]. In general terms, digitalisation is perceived as the set of methodologies, processes, and tools that increase the competitiveness of HEIs, as it provides new economic models of growth aligned with the Fourth Industrial Revolution. Thus, the DT of HEIs offers the possibility to build new competitive strategies that can be implemented through policies and plans in education systems. In addition, it will allow linking these plans with the needs of companies to align the knowledge and skills of students with those needed by companies.

In addition, it is a priority for institutions to understand that digital transformation can also be an advantage for learning methods and research activity [24]. The introduction of digital technologies, therefore, influences the teaching and learning process for both teachers and students. These developments have enabled the introduction of new methodologies and innovation tools, which facilitate a student-centred approach to the learning process [27].

In terms of developing new learning models, most are trying to move from traditional lecture-based training, where learning is teacher-centred, to a competence-based assessment system, where new digital tools enable new types of student-centred learning [28]. This methodology leads to greater success in the learning process and greater job satisfaction for teachers [29].

The implementation of this new educational approach is perceived by teachers as more complex. It requires a change in the attitude and role of the teacher. Moreover, these changes demand a significant amount of time and a deeper commitment from teachers, which generates some resistance to change. This cultural change means that new professional profiles must be managed, which requires new styles of leadership. Retaining talent involves developing a concern for the health of employees and caring for the work environment [30]. The types of HEI stakeholders are shown in Table 1.

Table 1. Types of HEI stakeholders.

Categories	Groups
Governing bodies	State and federal governments; Board of Directors; neutral organisations; religious organisations
Administration	Rector; Dean; management team
Employees	Faculty; administrative staff; support staff
Clients	Students; parents; spouses; service sector partners; employers; companies receiving trainees; companies employing trainees
Suppliers	Secondary education providers; secondary school students; other HEIs; service companies
Competitors	Direct: public and private post-secondary education providers Potential: distance education providers; start-up companies Substitutes: employer-sponsored training programmes
Donors	Individuals (counsellors, friends, parents, pupils, employees, companies, research centres, foundations)
Communities	Chambers of commerce; special interest groups; school systems; social services; neighbours; chambers of commerce; special interest groups
Regulatory agencies governmental	Ministry of Education; neutral organisations; state and local financial aid agencies; research councils; local research grants; tax authorities; social security; patent office; etc.
Regulatory agencies non-governmental	Foundations; accredited institutional and non-programming entities; professional associations; sponsors; ecclesiastics
Financial intermediaries	Banks; fund managers; analysts; analysts
Joint venture partners	Alliances and consortia; corporate co-sponsors of research and educational services

Notes: The types of stakeholders in Higher Education Institutions are shown in Table 1, adapted from [31].

3. Methodology

The aim of this article is to propose a model that encompasses the most relevant factors that, according to their internal actors, can facilitate the process of QoL in HEIs, overcoming possible resistances.

Today, HEIs, like many organisations, find themselves immersed in the processes of QoL. In order to study the changes they are facing, and due to the idiosyncrasy of HEIs, this study follows a qualitative methodology, which can provide complete and reliable information for this research, with the aim of understanding and interpreting these highly complex phenomena. Among the most appropriate techniques for data collection in the study of subjective aspects of human behaviour, we can consider participant observation, structured and semi-structured interviews, and content analysis [32].

The case study has been considered the most appropriate methodology to achieve the proposed research objective [33]. Therefore, this study analyses the key factors which, according to the main internal stakeholders (management, teaching and research staff, and administrative and service staff), facilitate the process of DE in an HEI. This study was conducted by contrasting the information collected from three sources of information (triangulation principle): (1) semi-structured interviews with members of the different groups, (2) information collected through direct observation, and (3) analysis of the institution's internal and external communications through its website, social networks, audio-visual content platforms, radio, institutional communications, annual reports, and other media.

For the analysis, a specific HEI has been selected. There are several reasons for choosing this institution. Firstly, it is a current case of DT of an HEI from a traditional

culture (the institution is more than 55 years old) to a digital one. This transformation has accelerated more rapidly in the last two years due to a change in its management team. In addition, since the academic year 2021/22, a major change in teaching methodology has been implemented, moving from traditional teacher-centred methodologies to the massification of new ones that put students at the centre. The institution has called this new approach Transformative Learning [34].

Finally, the pandemic caused by the SARS-CoV-2 virus generating COVID-19 has also required urgent decisions and profound changes, as it was necessary to move from face-to-face training to distance training abruptly, accelerating the DT process, which would otherwise have taken several years to complete. These three reasons increase the interest in studying how this transformation is taking place and how it is impacting the organisation's key internal stakeholders.

To achieve the objective of this study, which is to identify and contrast the main factors that facilitate the process of TD, it was considered, according to [33], that the best method was to conduct in-depth interviews with a representative sample of all internal stakeholders of the HEI. Therefore, 41 interviews were conducted with the president, the management team, the teaching and research staff, and the administrative and service staff. Twelve interviews were conducted among the management team, including the following positions: honorary president, president, secretary general, general manager, general manager, director general, director of innovation, two business unit managers, director of customer experience, and director of DT. Thirteen members of the administration and services staff were also interviewed, including the head of the commercial department and several employees from the marketing, commercial, administration, academic planning, and career opportunity departments. Sixteen professors and researchers also participated in this study. The diversity of the informants' backgrounds, in terms of their positions in the organisational structure and in the departments, has led to different perspectives, enriching the analysis and implications of the research.

The interviews were conducted between 2019 and 2020 within the institution. The interviews lasted, on average, one hour. They were recorded, and field notes were taken at the same time. Subsequently, the recordings were transcribed, and the information collected was completed. The interviews started with semi-structured questions, where the interviewee was asked his or her opinion on the digital transformation process and some more specific questions depending on the participant's relationship to the process.

The number of interviews was not specified at the beginning of the research, following a strategy of theoretical saturation to determine it: interviews were conducted until it was perceived that informants reported similar and consistent information to support the validity and quality of the theoretical model [35].

Finally, to complete the principle of triangulation of information and to achieve sufficient consistency in the data, access was gained to documents from the corporate intranet during the financial years 2019 to 2022, generated by the different departments such as Corporate Communication, Presidency, General Secretariat, Human Resources, as well as annual reports and a book on the history of the institution (1965–2021). In addition, evidence has also been collected from digital channels such as blogs, alumni magazines, websites, and social networks (YouTube, LinkedIn, Instagram), and commercial campaigns carried out by the marketing and sales departments (2019–2022).

The next steps of the case study are shown in Table 2, and stages of the case study, in Figure 1.

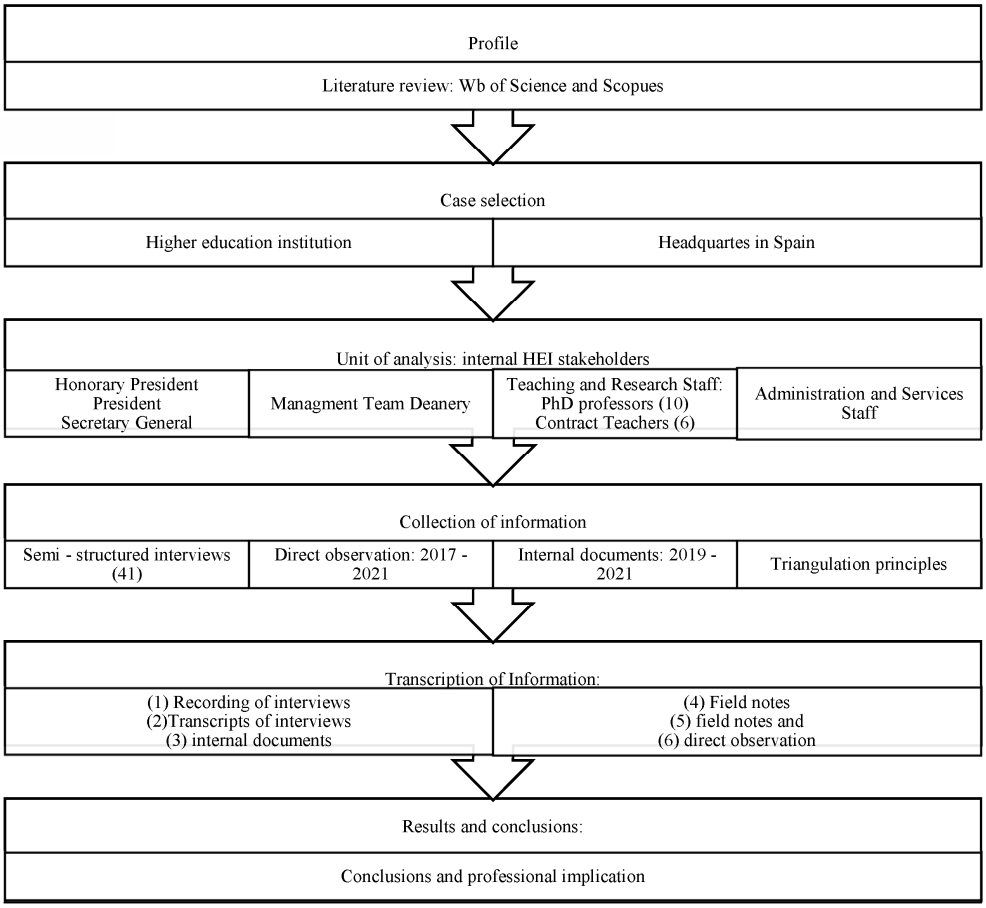

Figure 1. Stages of the case study, adapted from [35].

Table 2. Stages of the case study.

Profile **Literature review: Web of Science and Scopus**
Case selection Higher education institution Headquarters in Spain
In Unit of analysis: internal HEI stakeholders. ***Management Team:*** Honorary President President Secretary General Deputy Director of General Management Innovation Director Digital Transformation Director Dean of Undergraduate Area Dean of Graduate Studies Two Professors Doctors in charge of the careers Vice-Dean of Undergraduate Studies Professor Doctor Head of Department ***Teaching and Research Staff:*** PhD professors (10) Contract Teachers (6) ***Administration and Services Staff:*** Sales Manager Informants from the following departments: marketing, commercial, career opportunities, academic coordination, academic programming, digital transformation.

Table 2. *Cont.*

Collection of information: Semi-structured interviews (41) Direct observation: 2017–2021 Internal documents: 2019–2021 Triangulation principles
Transcription of information: (1) Recordings of interviews, (2) Transcripts of interviews (3) internal documents, (4) field notes, (5) field notes and (6) direct observation.
Results and conclusions: Conclusions and professional implications

Notes: adapted from [35].

4. Results

Based on the data collected from the research process, we can state that the top five propositions that facilitate the HEI DT process according to internal stakeholders are: the teaching process, internal communication, culture change, data-driven management, and leadership, which are listed in Table 3.

Table 3. Top five propositions within the HEI's DT process according to its internal stakeholders.

Internal Stakeholders	1.	Teaching process	• Technology • Methodology • Teacher management
	2.	Internal communication	• Organisational management • Process automation
	3.	Culture change	• Processes • Methodology • Technological tools
	4.	Data-driven management	• Business intelligence
	5.	Address	• Leadership • Working environment

4.1. Improving the Teaching Process

The institution is moving from a traditional teacher-centred methodology based on lectures to a new one that puts the learner at the centre of attention, including flipped learning, where the learner explores materials provided asynchronously to acquire prior knowledge before attending the classroom. This methodology requires teachers to handle technological tools [36].

In the case of the institution under study, it developed a model that combines the competency-based assessment model and student-centred learning, not forgetting the digital aspect of the information society. This model is called transformative learning. A professor (PhD) responsible for an academic area expressed: "It would be necessary to have more technical support both for the generation of new content and for the use of new tools (LMS). It would facilitate the process of developing and implementing the new flipped classroom methodology, not forgetting the subjects that are taught in asynchronous format". Thus, having a specific department to support the teaching staff would facilitate the process of implementation and development of the new methodology.

Regarding the use of new tools for the management and evaluation of teachers in his department, he remarked: "The integration of all the systems used for the monitoring and management of teachers on the same platform would make it easier to obtain data

in real-time to be able to make decisions. It could also be used to evaluate the teachers of each subject by the students". In addition, an employee of the academic coordination department explains: "The implementation of new developments and IT tools to automate and integrate all data would facilitate the teaching coordination process when allocating human and material resources for classes".

This statement shows that to achieve DT, it is also important to develop tools that are integrated with the rest of the systems, e.g., LSMs (learning system management) such as Canvas [37]. A DT employee comments: "New systems and technologies must be aligned with the customer experience that our students have in their daily lives. Therefore, the reputation of our organisation depends on creating the best customer experience for our students during the learning process".

Proposition 1. *The use of new technological tools such as Canvas improves the implementation of new teaching methodologies, as well as the academic management and reputation of HEIs.*

4.2. Internal Communication

Among the critical values perceived by companies to achieve a leading competitive position in Industry 4.0, cooperation and functional communication are frequently mentioned [38]. It is important for companies that their employees are aware of the purpose of their work and can benefit from such cooperation. Ensuring a high level of awareness requires that employees have access to information and establish smooth communication internally and externally.

Internal communication will also promote faster innovation processes, as new technologies improve communication channels and make decision-making lines more flexible, empowering employees in their professional experience and helping them to collect their initiatives. In the case at hand, the software used in the internal communication process is TEAMS [39].

A person who works managing the professional insertion of students in the professional development unit, with more than 10 years of experience in the institution, stated: "It is important to establish adequate communication channels that manage to transmit in a fluid way, both horizontally and vertically, the changes that are taking place within the process of digital transformation of the organisation. This new scenario means changing the way we have been working in recent years".

The creation of fluid communication channels and training in new tools and processes would facilitate the possibility of getting all employees to commit to the need for these changes. It would also reduce employees' uncertainty about these transformations, facilitating the process and reducing resistance. Regarding the improvement of internal communication channels, one of the heads of the academic coordination department explains: "Improved communication between different departments, such as programming, academic management and teaching staff, would facilitate the coordination process".

Establishing fluid communication channels would also avoid delays in decision-making processes and facilitate academic coordination. Regarding internal communication, one contract teacher commented: "It is important to feel that the management listens to our grievances, drawing on our experience. A few years ago, we felt more important, possibly because the organisation was smaller and you could have a closer relationship between staff and management. Now, as the size of the organisation has increased, communication between teachers and management has become more and more difficult".

Generating adequate communication channels between teachers and management would increase the sense of belonging to the organisation and improve the working climate, as teachers, especially senior ones, would feel more trusted by the organisation: "Having profiles within the organisation that have an overview of the processes and a broad knowledge of how each process works is important to understand the workflows and to be able to adapt digital tools to these processes, with the double objective of automating processes and collecting data that is really relevant for management".

To achieve this goal, smooth communication between departments is essential, as it will facilitate the design of the systems and tools needed to automate processes and collect the data necessary for decision-making and organisational management.

Proposition 2. *To develop adequate internal communication channels, it is essential to implement automation and data collection systems for decision-making and organisational management.*

4.3. Cultural Change

The cultural change of the institution was initiated within its strategic plan for 2015–2020, based on five values: diversity, excellence, service to stakeholders, co-responsibility, and novelty, on which the process is built. These are the pillars underpinning the transformation from a traditional culture, based primarily on establishing relationships of trust and loyalty between the organisation and its stakeholders [40], to a digital organisational culture, where change and innovation take place.

These principles aim to transform the organisation to embrace the difference, seeking excellence throughout the institution, with special care towards the satisfaction of all stakeholders, without forgetting the sense of ethics and social responsibility with an attitude of continuous improvement. Therefore, continuous training is necessary to ensure that employees are kept up to date and can be part of the organisation's transformation process. Regarding the personal and professional development of each member of the organisation, a member of the internships and careers department stated: "It is necessary to update our training as employees, including this change of processes, methodologies and tools derived from the digital transformation".

This training should include agile methodologies such as Design Thinking [41], oriented towards the development of new services and products: Lean Start Up, to validate different proposals with users, and Scrum, a methodology for the creation and development of new projects. A member of the management team comments on the value of co-responsibility: "We must strive to meet the objective of training professionals and people whose success generates wealth for countries and society, for which the institution is developing new methodologies, Transformative Learning, to help achieve this".

The achievement of high standards of talent, skills, and knowledge by HEI-trained students assures the institution a good reputation if they manage to occupy relevant positions in companies. A member of the management team commented: "We must implement continuous improvement processes, to be constantly evolving and, based on the data we collect both internally and externally, to be able to align and steer the organisation according to the changing needs of today's business and society at large. It is important to consider the people and values of the institution in the DT process, which is important as it drives the change process and avoids resistance to change. The management team of the institution has perceived the need for a cultural transformation".

Proposition 3. *To achieve the digital and cultural transformation of HEIs, people must be trained in methodologies, processes, and tools.*

4.4. Data-Driven Management

In highly digitised organisations, it is critical to understand and manage digital innovations to ensure their successful implementation [42]. Therefore, the use of tools that enable rapid and predictive analytics is a cornerstone of business sustainability. The use of platforms that enable online digital interactions with the possibility of using big data for management purposes can be considered fundamental [38]. In the case of the HEI analysed, this is a major change, as we are dealing with an organisation that is more than 55 years old, based on a traditional management model focused on satisfying the needs of its customers.

Digitalisation is necessary to implement a data-driven management model. It is necessary to develop systems that provide real-time information to facilitate control, management and decision-making processes. This is known as data-driven management. The

management team is aware of the important moment they and the organisation are facing. A member of the management team commented: "We are adapting to the new management model that digital innovations are generating. Data-driven management provides an important tool to implement predictive systems to help management make decisions in real-time".

Having the right information on time makes it easier for the organisation to adapt flexibly and quickly enough to changes in the environment, enabling better decisions. It also offers the opportunity to strengthen the positioning of the HEI in the market. A member of the administration department stated that: "Having data to be able to manage the day-to-day can be necessary. The feeling is that it is a phased process, we already have the technological systems, but we need more time to be able to make the most of the opportunities generated by the system".

The implementation of this process requires time to deploy the right systems in order to obtain the information required for decision-making. The head of the DT department stated that: "Any process of implementing new data technologies is complex and takes time, as HEIs are complex organisations that sometimes use different systems to solve each need".

Due to the multiple communication and marketing channels that HEIs have to deploy in their student recruitment process, such as websites, landing pages, social media, etc., it is essential to build systems that allow the correct management of all applications. The accuracy of management has a direct impact on student recruitment results. The use of systems that integrate information from most departments (academic management, administrative-financial management, marketing, and sales) makes all data available, allowing the organisation to implement business intelligence systems. Based on prospect data, it is possible to assess which channels and formats provide the highest return on investment to focus on. Technological tools generate valuable information in terms of candidate profiles, consumption habits, and preferences that allow HEIs to adapt their recruitment strategies. One sales manager stressed that: "Having the right systems in place to handle the high number of applications received is a critical point that has a decisive influence on the commercial objectives of recruiting new students".

These systems can also help to achieve a more accurate picture of the institution's efficiency in providing internships and job placements for students, as well as generate adequate statistics to support other activities. Members of the student internship management department stressed that: "In the management of internships and job offers from companies, the availability of appropriate digital tools such as 'virtual portals' streamlines the processing of information between firms, institutions, and students, resulting in a boost to the employability of our students and, therefore, to the reputation of our institution".

Proposition 4. *Having the right data from different departments and using data-driven management helps to create business intelligence systems that facilitate decision-making.*

4.5. New Management Models

Digitally transforming an organisation goes far beyond digitising it. It is the result of organisational change, where people, processes and the business model consider technology as a tool to generate value among its stakeholders [42]. This transformation requires investing in the development of appropriate new digital skills and competencies. A member of the management team, responsible for innovation processes, commented: "Organisations must evolve from the adoption of digital technologies, through the connection of all departments, to shorten the development and manufacturing times of products and services. This process involves moving from digital communication to management, and from there to digital management".

These new models involve the use of new methodologies, the automation of processes, and the implementation of the right tools to achieve the shift to a digital organisation. The organisation must look for the right talent and an assessment of competencies and skills

to obtain the right people in the right places at the right time. If there is no internal talent that can be trained, organisations must source it from outside, hiring external services or personnel [43].

Currently, HEIs are promoting teaching innovation, which requires material and human resources to develop good practices and involves all actors. For example, a non-tenured professor in marketing explained that: "It is important to have a department of academic innovation which encourages the teaching staff to use appropriate methodologies and promotes such innovation through the creation of working groups and events, enabling the exchange of good practices among the faculty, which can facilitate the systematic development of such practices".

The DT of organisations generates a high demand for digital talent, which can be generated within the organisation or recruited externally. In both cases, it is important to be able to retain it. Beyond their salaries, the new generation of digital talent is particularly concerned about the quality of their work environment, in terms of work–life balance, equality, and sustainability. A member of the careers department shared his view on this: "The organisation's orientation towards caring for people, having a good working climate and new ways of leading that facilitate equality, which is usually required by the new generations, favours talent retention and facilitates the transformation of the organisation". In terms of technological tools for academic and administrative management, it is necessary to evaluate the implementation of new tools currently available on the market. "New technological tools would allow us to take advantage of the synergies generated, sharing information on all the needs of the different academic areas. The new tools bring the optimisation of material and personal resources". Smooth internal communication, process analysis, and implementation of appropriate tools are required to achieve process automation and resource optimisation.

Proposition 5 . *New digital tools facilitate the implementation of new leadership and management models, moving from digital communication to management, and from there to digital management*.

5. Discussion and Conclusions

Technological innovations are driving the development of new digital tools in the field of ICT, which is changing the way we relate to our environment. Both in our daily private and professional activities, these innovations offer us new functionalities with the aim of improving our user experience. Organisations have discovered that these digital innovations provide solutions that offer the possibility of developing new value propositions for customers, facilitating the increase of their market share. In addition, the incorporation of tools favours the automation of processes with the reduction of human resources that until now were dedicated to repetitive tasks. Automation also reduces the errors that we humans tend to make and standardises processes in the search for greater efficiency. Another advantage of the incorporation of digital tools is the availability of better communication channels, both internal and external, which provide us with a greater amount of data. This data, once properly processed, provides valuable information for decision-making by the management team. With the information provided by data, management teams can make decisions with less margin for error and adapt faster and better to changes in the environment. Therefore, we will have more flexible organisations, which adapt more quickly to changes in the environment, are more efficient in their processes, and are constantly listening internally and externally.

Due to the above, it is becoming increasingly important to study how organisations can and should carry out these digital transformation processes. The education sector is one of the most important sectors to consider in this new environment, as these new technologies are changing the way of learning and teaching. In addition, the experience of students during the educational process is enriched, facilitating collaborative work, including online, and the possibility of being connected anywhere, anytime and through

any device. The latter is necessary as it is the way in which we manage our daily lives, both in our private and professional activities.

The above changes imply important modifications, both in the teaching and learning processes and in the relationship processes between institutions and students. The implementation of TD processes has an impact on the modification of the culture of HEIs and the way they relate to their environment. Stakeholders, both internal and external, are particularly relevant here. Their attitudes can help or hinder this transformation. Therefore, we must identify them, classify them, and collect evidence of those factors that, according to each group, can help in the process.

The appearance of SARS-CoV-2, which generated COVID-19, was a distorting factor in this environment, as the confinement paralysed most economic activities, but mainly teaching activities. All the developments that had been undergoing testing and validation up to that point suddenly had to be used due to the situation that had been created. In other words, the urgent was prioritised over the important. In many cases, the developments did not go through the necessary evaluation and improvement processes, which meant that many decisions were not entirely appropriate. On the other hand, we must not fail to recognise, on the positive side, that the situation created by the pandemic accelerated and boosted decision-making in the digital transformation of organisations which, in another context, would have taken much longer. The initial state-of-the-art study confirmed that there was no previous research in this sector. Subsequently, the research process and its application to a case study was carried out to identify the main factors that can determine the HEI's DT process. It is corroborated that the transformations necessary to successfully undertake the process are far-reaching and will bring about a cultural change in the organisation. This change will mean a migration from a traditional culture, where the teacher was at the centre of the educational process, to a digital culture, where the student is the protagonist of the process and around whom the whole process of change must revolve. In this study [44], model has been used due to its characteristics, as it analyses a contemporary event that has been developing for five years and is not yet finished. A privileged view is available because of the organisation's willingness to take part in the study based on the contributions of most stakeholders. In addition, one of the authors, who is part of the organisation, has been able to directly observe the results obtained. Finally, we had access to both internal and external communication channels as a third way of achieving sufficient consistency in the results [44]. To find out who were the main protagonists in processes such as the one under study, we followed the studies of [45,46].

Knowing the main factors that can drive the process of institutional change in HEIs can be a major contribution to making this transformation happen in a smooth and profound way. Doing so from the perspective of internal stakeholders provides the keys to the success of the process. The purpose of this article is to unveil the factors that can drive this change and to offer HEI managers a guide to steer their organisations towards the WP of their institutions. Table 4 summarises the results obtained from the internal stakeholder research. As can be seen, to achieve the DT of an HEI, it is necessary to implement the right technological innovations, establish channels to communicate the process, move from a traditional to a new digital culture, make data-driven decisions, and use a participative leadership style to develop and retain digital talent.

Different contributions can be derived from this work. For the scientific community, the article highlights the main factors that can drive the WP of an HEI. As a result, five propositions have been identified that reflect the main factors that can drive the WP of an HEI, such as the learning process, internal communication, culture, decision-making, and leadership and people management. Based on these, we have determined eleven key factors in the transformation process according to internal stakeholders.

Table 4. Propositions, key factors and outcomes that facilitate the digital transformation of an HEI.

Proposals	Key Factors	Results
1. Learning process	New methodologies (transformative learning) New technological tools for teaching and administrative management (LMS)	Teaching innovation Technological innovation
2. Internal communication	New methodologies (Agile) New digital tools (Teams) Creation of intergenerational and interdepartmental groups	It facilitates the process of change. It increases people's participation. It reduces resistance to change.
3. Culture	Digital talent development and recruitment Continuous improvement processes	Shift from traditional to digital culture Developing competitive advantages
4. Data-driven decision making	Implementing digital tools to obtain the right data Data-driven decision-making and business intelligence Cognitive intelligence and preparedness	Data-driven management (business and data-driven intelligence) Adaptation of the organisation to changes in the environment. Flexible organisation
5. Leadership and people management	New types of participatory leadership Comprehensive care for people. working comfortably environment	Retaining and attracting the best digital talent Reputation enhancement

Notes: Table 4 summarises the results obtained from the research conducted among internal HEI stakeholders.

This study also offers several practical implications. When an HEI wants to undertake DT, it should bear in mind that this will involve developing innovation processes, both in teaching methodologies and in the use of technological tools. Training staff in the use of agile methodologies is a critical factor in this transformation. This process can be facilitated by establishing interdepartmental and intergenerational working groups. Having appropriate digital tools in place will enable data-driven decision-making and the establishment of business intelligence systems. However, such a transformation may require a shift from a traditional to a digital culture, driven by participative leadership that cares for the working environment and people's well-being, which will be critical for development.

6. Research Limitations

There are some limitations to this research that could be overcome in future analyses. Firstly, the qualitative nature of this article only allows the researchers to present some propositions, which could be turned into hypotheses and tested through quantitative empirical evidence to complement the findings of this case study. Additionally, this research has only focused on internal stakeholders. Therefore, it could be complemented by considering the impressions of external stakeholders (students, alumni, employers, and society itself), which are also critical when analysing the main requirements of an HEI's DE process.

As this study has shown, the organisational context, especially the environment, plays an important role in the DT process of an HEI. In addition, the regulations of the education system in different countries and regions are likely to affect the initial degree and pace of technology adoption, facilitating or blocking the process. Therefore, it might be interesting to broaden the vision emerging from this article by considering the perspectives of different HEIs considering many types of diversity: tenure, country, size, specialisation, etc.

HEIs have a critical responsibility in modern societies. When it comes to the Sustainable Development Goals (SDGs), they can be considered directly involved in the achievement of #4, Quality Education. However, they can indirectly impact all of them, as

they will educate and train a new generation of professionals who will have a leading role in building a better society. Moreover, HEIs' WP can potentially multiply their impact, making them accessible from the remotest corner of the world, and overcoming geographical and economic barriers.

In relation to the literature review carried out, this is limited to a specific period in time. However, in view of the data from recent years, a growing trend is confirmed in the number of works that are expected to be produced in the coming years and which should be updated.

Another limitation arises from the fact that this study is limited to a single Higher Education Institution and could be enriched by carrying out the same study on a larger sample of Higher Education Institutions to corroborate or, where appropriate, expand the results of this study.

7. Future Lines of Research

It is suggested to study the impact of technologies that can be used in education, such as extended realities, artificial intelligence (AI), blockchain, digital twins, and the Metaverse. These technologies have interesting applications in the field of training, by facilitating immersive experiences through visors or glasses, in environments where digital spaces can be developed with tools that significantly enrich the training experience, recreating environments that facilitate immersive content. They also facilitate the connectivity of students and teachers in these immersive spaces, significantly increasing the level of attention and interaction between teachers and students. In addition, it is possible to design group workspaces for students in immersive formats, being able to connect a larger number of students who are anywhere. All that is needed is an internet connection and a pair of glasses, a PC, or a smartphone. Therefore, although these are technologies that need to go through the corresponding process of maturation and research, they still offer new capabilities that should be the subject of future research. However, authors such as [47] argue that case study methods are only appropriate for exploratory research. Another limitation highlighted by [48] is that of finding companies that may be appropriate for the research objectives, and that may be interested in collaborating.

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Abbreviations

ICTs	Information and Communication Technologies.
TD	Digital Transformation
HEIs	Higher Education Institutions.
SDGs	Sustainable Development Goals
WoS	Web of Science

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