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Laying the foundations of TecnoCampus' Digital Transformation

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Abstract

Navigating through a volatile digital era, the adoption of new business models is crucial to survive within the market. Covid-19 has accelerated the path towards the Digital Transformation (DT) of all sectors, including education. After deep diving into the literature on DT, a Digital Maturity Framework has been created to assess the prospects of adaptation to the digital era, in this case of TecnoCampus, from three dimensions: Customer & Data, Operative Model & Organization and Value proposition & Technology. To achieve the main objective, a thorough internal analysis of the institution has been undertaken. Moreover, one of the dimensions has been identified to prioritise in order to develop an action plan which will be the lever to accelerate the path towards DT. Hence, it might be important to keep working on the three dimensions identified to achieve a data-driven organization where decisions will be made based on real customer data, to adopt a mindset based on collaboration, innovation and proactivity. And, ultimately, to harness organizations potential in order to provide customer with the value proposition that responds to their needs.

Resumen

Navegando por una volátil era digital, la adopción de nuevos modelos de negocio es crucial para sobrevivir en el mercado. La Covid-19 ha acelerado el camino hacia la Transformación Digital (TD) en todos los sectores, incluyendo la educación. Después de analizar en profundidad la literatura acerca de la TD, se ha creado el *Digital Maturity Framework* para evaluar las posibilidades de adaptación a la era digital, en este caso de TecnoCampus, desde tres dimensiones: *Customer & Data, Operative Model & Organization and Value proposition & Technology*. Para alcanzar el objetivo principal, se han llevado a cabo un detallado análisis interno de la institución. Además, se ha identificado una de las dimensiones para priorizar y desarrollar un plan de acción, concebido como la palanca para acelerar el camino hacia la TD. Por ende, es importante remarcar que es necesario seguir trabajando en las dimensiones identificadas para llegar a ser una organización *data-driven* donde las decisiones se basen en datos reales del consumidor, adaptar una mentalidad basada en la colaboración, innovación y proactividad. Y, finalmente, aprovechar el potencial de la organización para ofrecer una propuesta de valor que responda a las necesidades del consumidor.

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1. Introduction

Organizations, institutions and every industry are experimenting an industrial revolution guided by rapid change, integrated and more sophisticated technological marvels and innovation (Schwab, 2016). Known as the digital revolution, it places new technologies at the centre of the industry where the digital ecosystem is characterized by concepts such as Machine Learning (ML), Artificial Intelligence (AI) or Cloud (Carrillo, 2016). Regarding the rapid change, organizations might need to understand this era as a new mindset in which adaptability is crucial to survive within the market. Firstly, new customer behaviours need to be taken into account regarding the improvement of the current offering and the continual evolution of the product or service portfolio. Secondly, emergent technologies may well be incorporated to the company and integrated with the operating model, product or service and online and offline channels (PwC, 2020).

Such practices are not considered to be carried out independently. Indeed, organizations require tools to guide their steps towards the adoption process in this digital environment (Rogers, 2016). This process may well be identified as Digital Transformation (DT), an ongoing project to be implemented and continually revised and adjusted to external needs (Mergel, Edelmann, & Haug, 2019). According to different authors, it might be crucial to understand which is the profile of the institution or company that is going to take this challenge as a first phase to undertake the project (Ruiz-Falcó, 2019). This is commonly discussed throughout the market as Digital Maturity, which is an evaluation of the current business core model within the digital era and its prospects of adaptation to it (Remane, Hanelt, Wiesboeck, & Kolbe, 2017).

When discussing DT adoption, it has been estimated that from 66% to 84% of the projects end up in failure (Correani, De Massis, Frattini, Messeni Petruzzelli, & Natalicchio, 2020). Having a partner may well be crucial in terms of field knowledge, emerging technologies expertise and methodologies knowhow with the aim to analyse and understand where they are, set where they want to be and more precisely how they are going to get there (Accenture, 2020). Therefore, this intervention plan is to be

developed by Inn Consulting[1], an educational consultancy with more than ten years of experience in educational transformation.

Education is one of the fields where DT is gaining ground. The process implies the seamless integration of technology as a way to encompass the product, the service, the administrative procedures and every interaction with the customer; in response to the evolution of the sector and the constant changes of a two generations students' behaviour patterns (Millennials and Generation Z).

Several higher education institutions are shifting from their traditional structures, products and services to those business models that respond to external shifts. Within the national context, there might be identified a lack of guidelines and governmental support to undertake this sort of projects.

Being part of a private university with public funding, TecnoCampus is a technological park and a university centre. Composed of three schools (Business, Health and Engineering), it is part of a wide range of businesses, a feature that implies a strong position within the market. The university offers different degrees, masters and postdegrees completed with several services. Among the different resources, TecnoCampus have a powerful technological resources network and a wide range of professionals. Regarding the external environment, Strategic Plan 2022 is what enhances university's market position. However, the market is rapidly evolving and the competitive landscape might have an increasing number of players. Institution's mission is to contribute to the economic and social growth of the territory linked to Mataró and Maresme, through an integral model of knowledge generation, training, business, and innovation. All this to be a model of reference in the national and international scope in the interrelation between the university and the company (TecnoCampus, 2021).

Regarding DT, SQAI department presented *La universitat digital in* 2018, a project conceived to be the DT of the university, which was not approved at the end due to a lack of resources. As a result, and in line with the external context where the institution develops its activity, this project of intervention aims to assess the present situation of

[1] Inn Consulting has been invented to undertake this project.

TecnoCampus in terms of Digital Maturity to lay the foundations of the DT of the institution. To achieve that, a Digital Maturity Framework is going to be created as a compilation of the literature on the topic. Regarding the institution selected for this project, TecnoCampus, the framework will be fulfilled thanks to an in-depth qualitative analysis in order to obtain a Digital Maturity rate and identify one of the dimensions of the framework to develop the action plan.

Regarding the relevance of the investigation within the Joint Honours I am currently studying, this project has been designed as a compilation of different drivers, such as innovation, intrapreneurship, strategy, business model or value creation, among others. After five years, working and learning about business environment, management and marketing, my purpose is to apply this knowledge and broaden it in the field of DT which is one of the current organizational practices that I am keen on. Presented as both a professional and personal challenge, this project unifies the two fields I am more aligned with, business practice and consultancy services.

2. Theoretical framework

2.1. Background

Despite the fact that DT has not a standardized definition regarding its newness to the market, it can be identified as a process of modification of different capabilities of an organization in response to changes in the market and customer behaviour (Mergel, Edelmann, & Haug, 2019). This process requires the usage of digital technologies that are arguably going to have a direct impact on productivity, business model, product offering, customer experience, operations and ultimately value creation processes (PwC, 2020) (Vial, 2019).

Hence, DT encompasses a great range of elements throughout organizations. Once adjusted, these elements might be properly embedded in order to tap the full potential DT involves. On the one hand, digitalization of sales and channels in which companies interact with their customers might result in new ways to communicate and engage customers. On the other hand, DT allows organizations to make tactical and strategic decisions based on data-driven insights, besides, capture value by the adoption of new business models (Haffke, Kalgovas, & Benlian, 2016).

Digital Maturity is arguably described as the evaluation of the current business core model within the digital era and its prospects of adaptation to it (Remane, Hanelt, Wiesboeck, & Kolbe, 2017). This concept is becoming more popular among consultancies, universities and companies as a starting point to understand how companies need to act throughout the path towards DT (Lorenzo, 2016). Before initiating this path, it might be crucial to understand which is the profile of the institution or company that is at the point of taking this challenge (Ruiz-Falcó, 2019).

In fact, companies such as Forrester provide their clients with a Digital Maturity model to evaluate the level of digital preparation (Gill & VanBoskirk, 2016). When discussing Digital Maturity, authors consider distinctive dimensions where this maturity needs to be assessed.

The education field as it is going to be presented in the following sections, is currently experimenting changes regarding emergent technologies, Covid-19 and current demand. Overall, both external and internal factors pose the need to go a step further in this digital era and adopt structured and robust DT plans. According to a report from Coolhunting Group, the constant emergent innovations in education have not already led to a massive transformation of the field. Looking at the bigger picture, AI, Data Analytics or ML are technological trends currently being used in different higher education centres (ESIC, 2018).

Digitally transforming education is not just about technological automation or applying digital in the learning experience (ESIC, 2018). Indeed, it needs to be followed by the word transformation which implies a complete integration of technological and digital tools through the entire organization. From the degree and extracurricular activities offering to the academic and administrative management, passing through every touchpoint of the customer experience (Leiva-Aguilera, 2016).

Consulting companies around the globe are offering technological and managerial services focused on education. For instance, Accenture US provides the implementation of tools such as Enterprise Resource Planning (ERP) which benefits different elements throughout universities' networks. Working with data and collaboration, this technology is able to meet students' demand on and off the campus and facilitate the administrative procedures at minimum cost (Accenture, 2020).

Large-scale projects have been also developed in other countries such as India. Being the country with the largest number of students, Accenture India was hired to bring Indian education institutions to the international rankings, improve their facilities, develop an ongoing research plan, increase enrolment rates and align the current offering to the international labour market demand. With the creation of a digital ecosystem, there were developed analytics tools to improve reporting and student's performance tracking both for educators and parents (Accenture, 2020).

Following the examples, Civics Education is based on a society which lacks collaboration, connectivity and interaction, resulting in a mistrust in the government. This organisation's aim is to make sure that next generations have the knowledge and resources to understand and take part in American economy, workforce and culture. The

key point of this initiative is the collaboration in terms of data and business among different industries and institutions within the country to reinvent the way young citizens learn about their social environment. In a nutshell, this business case presents an innovative process to design an educational path which plants a grain of sand in the reinvention of the education sector (Harvard Business Review, 2019).

Last year the University of Memphis undertook a process of DT starting with the identification of the proper strategy to develop this kind of projects. What they learnt was that customer behaviour switched constantly and making decisions during the process with real-time data was a new way of assessing success. Indeed, adopting a lean start-up methodology was key to put the customer at the centre. Moreover, being able to fail, ask themselves what the problem was and find solutions have become an ongoing process that prepare the company to approach DT (EDUCASE, 2019).

Turning to the Spanish educational sector, there might not be identified massive DT projects. Nonetheless, there is a wide range of innovations key to position universities within the market. For instance, Deusto and LEINN present disruptive learning models created through Design Thinking methodologies and based on current market skills demand. Furthermore, UIC provides employees with an innovation hub where they can develop their own ideas with all the resources needed available.

Turning to TecnoCampus, product and service offering is part of an ecosystem in which degrees, post degrees and masters are underpinned by three cornerstones: internationalisation, entrepreneurship and professionalisation. Being one of the powerful attributes of the institution, the university bring together academia and business in a single space devoted to innovation and entrepreneurship. Twenty-seven-degree qualifications, postgraduate and master are offered to students and completed with a wide spectrum of services. Students have the possibility to boost their skills and access to the job market through specific professionalisation programmes and activities. To become professionally competent in a globalised context, there is the possibility to complete part of the studies abroad. Finally, as a key attribute of the university, entrepreneurial skills are taught to boost student's talent.

To fulfil the value proposition, TecnoCampus has a powerful resources network. There are a total of three hundred and four teachers and eighty service staff members. In regard to

technological resources, SQAI is a department focused on educational innovation and with the aim of ensuring the quality of the educational model. It develops annual training sessions for teachers, promotes innovative methodologies and analyses current learning trends in order to adapt them to the TecnoCampus' educational model.

In terms of tools for students and professors, there is a Moodle in which students can access their subjects, assessment marks, subject materials, IT support and academic records. In response to the changes that the pandemic has conveyed, SQAI developed a site with the objective to provide immediate support and resources focused on the new class formats. Moodle is complemented with TecnoCampus' application that provides practically the same information. On the other hand, e-Secretaria is a recent proposal for students to request and monitor their academic procedures. The main aim of this initiative is to cut down on paper consumption and to go a step further in the service digitalisation (TecnoCampus, 2020).

In terms of customers, it might be identified different groups. Firstly, future students, degree students, master/post degree students and Alumni. Secondly, professors of the different schools and service staff might also be considered as customers.

Finally, TecnoCampus strategy is sustained mainly by Strategic Plan 2022 that aims to present a guide of action in the path towards the consolidation of TecnoCampus initial proposal that encompasses economy, knowledge, progress and social commitment.

On the other hand, three years ago, the department of educational innovation and quality (SQAI) presented *La universitat digital*, a project conceived to be the Digital Transformation of the university. The project included three areas of intervention: teaching digitalisation, research digitalisation and academic management digitalisation. Concerning methodology, the plan was based in four parts (explore, automatize, evolve and transform), which were underpinned under a cultural change. Exploration results presented a status of the actions proposed in the plan. The current state of each of the pillars identified at the moment the presentation was handed, has been displayed in Annex 1.1. Colour green represented actions already carried out, yellow for those started and red for the ones that needed to be initiated.

Even though Management Board did not approve the project due to a lack of resources, some projects have been undertaken, from 2018 until the present, as a result of different

pain points detected in the analysis of the project presented. Regarding academic management digitalization, a plan to digitalize all the internal documents started in 2020 as well as the creation of a shared documents repository. Moreover, the deployment of a tool to manage all the workforce documentation is an ongoing project since last year too. As far as learning digitalization is concerned, it included both the integration of technological tools and its enhancement and the right mindset and support required to adopt them. From this pillar, Moodle has been visually improved and digital tools such as Turnitin, Zoom, Jamboard, Loom, Nearpod, Microsoft Office Suite or Google Suits has been introduced.

2.2. Theoretical framework conclusions

This section includes, on the one hand, the summary of the literature reviewed within the Theoretical Framework. On the other hand, the arguments that justify the creation of this project of intervention.

Having revised the current literature concerning DT and its approach to education, it can be concluded that undertaking a process of adaptability to the digital age is no longer an option (Leiva-Aguilera, 2016). Several higher education institutions all over the world are shifting from their traditional structures, products and services to those business models that respond to an age guided by data, technology and innovation.

Spanish educational sector requires a shift from the inside out since the government is not taking the action that should be taken. Different Spanish universities are adopting and implementing new technologies and ways of working to respond to the changing market. Moreover, students' changing patterns pose an important need for developing new communication and teaching methods in order to attract and engage them (Dias, Caro, & Gauna, 2015). Finally, TecnoCampus already presented a first attempt to digitalise the university, however, the lack of resources was the factor that led to the non-evolution of the plan. This challenge is not considered to be carried out as a unique agent, organizations require tools and expertise of different techniques to guide their steps towards the adoption process in this digital environment.

According to the previous arguments and as a compilation of the thorough revision of the literature, it has been created a summary of the dimensions selected by twelve

different studies (visit Annex 1.2. to consult the complete table). These elements lay the foundation of a general framework to assess the Digital Maturity created as a conclusion of all the studies reviewed. Hence, the framework might be composed of three dimensions: Customer (students & employees) & Data, Operative model & Organization and Value proposition & Technology. Each dimension may count with a wide range of statements drawn from the previous literature analysed.

When talking about Customer & Data it includes the understanding of students' behaviour, employees' behaviour, the key features of student's targets that will determine the value proposition and the data that can be collected from both groups in order to offer a seamless and optimized customer experience. Regarding the second workstream, Operative model & Organization refers to the overall culture of the organization towards DT and the methodologies and ways of working of the departments. Finally, Value proposition & Technology includes product (degrees), services and technology associated with them. All these elements can be observed in Annex 1.3, which displays the framework created.

In a nutshell, TecnoCampus is at a crucial point in which its external environment demands the undertaking of a DT process with the aim of covering the gap between current offer and the continual shifting demand. With the bases of the digitalization project presented three years ago, and without further ado, the aim of this project of intervention is to assess the present situation of TecnoCampus in terms of Digital Maturity as a starting point to accelerate the path towards DT. Inn Consulting will be in charge of helping the university to evaluate the present situation of the university in terms of Digital Maturity, to identify the dimension that needs to be firstly impacted in order to allocate the resources wisely and delimit the intervention to obtain the optimum possible outcome though the action plan.

It should be emphasized that when talking about TecnoCampus within the following sections, it is referred to the university and not the business part of the TecnoCampus Foundation.

3. Objectives

After deep diving in the literature on DT and its approach to education, it has been concluded that developing a project of DT is no longer an option within the market. As a first phase, it is widely discussed that the prospects of adapting to the digital era need to be assessed thanks to the Digital Maturity rate. Thus, the main objective of this marketing plan is to **assess the present situation of TecnoCampus in terms of Digital Maturity**. To achieve the core goal of this project of intervention, there have been stated three sub-objectives.

Sub-objective 1: Implement the Digital Maturity Framework to asses Digital Maturity of TecnoCampus

Regarding the Digital Maturity Framework created as a conclusion of the literature reviewed, a twofold qualitative methodology is going to be used to fulfil the framework since this plan seeks to observe a phenomenon with a holistic approach.

One of the methods chosen to collect the data is to developed an online research through TecnoCampus public documents from final year memories and the website.

The second method selected are semi-structured in-depth interviews. These interviews have been conducted to a sample of 12 stakeholders throughout TecnoCampus. The instrument selected to gather the data is the interview script created by the author according to the dimensions previously presented. The analysis of the interviews content and TecnoCampus' public information will be used to complete the different gaps of the Digital Maturity Framework.

Sub-objective 2: Identify the dimension that is going to be prioritised

Having identified the Digital Maturity rate, one of the three dimensions is going to be prioritised in order to develop the action plan. The reason why only one dimension is going to be selected is because a DT is conceived to be carried out through a long period of time and this project aims to be the lever to accelerate the path towards DT. The selection of the dimension will be done regarding its present and future impact on the whole organization and in terms of an easier capacity of implementation or adaptation.

Sub-Objective 3: Develop an action plan with different quick wins of the dimension selected

The action plan will include different quick wins that can be activated in the short term. Actions proposed, will be accompanied with the pain point detected through the internal analysis of TecnoCampus which helps to understand the gap detected to create the concrete action. Furthermore, the action plan includes the budget, resources and key performance indicators to assess the performance of the actions.

4. External and internal analysis

On the one hand the external analysis deep dives into DT within the educational sector with a national and a local scope. On the other hand, the internal context contains an analysis of TecnoCampus' assets organized by the three dimensions and the insights gathered from the interviews. Lastly, the Digital Maturity framework is going to be fulfilled in order to obtain TecnoCampus' Digital Maturity Rate.

4.1. External context

Needless to say, that every organization, industry and country follows its own path in the adoption of emergent technologies. In the last twenty years, Spain has not fully exploited all the potential that the fourth industrial revolution provides. In fact, digitalisation has increased the value added to the economy in the United States seven times more than it has impacted in the Spanish economy (Minsait, 2018).

Spain is positioned as one of the European countries with the lowest rates of business network digitalization (Varela, n.d). Having published its Digital Plan 2025, Spanish government poses a serious situation regarding lack of citizens' digital capabilities which implies a huge challenge to guide youngsters and unemployed people to meet the growing demand (Accenture, 2020). Nonetheless, the paper posted does not include a plan to digitise the education sector. It only details a set of actions to pursue innovation and university partnership (Gobierno de España, 2021).

Covid-19 is acknowledged to be the driver of the university's DT. Not only in the way they teach but also in terms of organization mindset towards digitalisation (n.a, 2020).

In fact, at the moment Covid-19 broke into our society, Abat Oliba was already in a DT path. Consequently, the institution is currently developing strategies that go a step further in the present educational system offering (n.a, 2020).

Within the national context, as it has been previously presented, it can be identified breakthroughs in terms of highly developed learning models. Such is the case of Deusto University, which presents a model that aims to learn how to think through research and provide the key concepts of academic and professional field. To achieve this, their model based on autonomy and significance, is created by teaching units through the following process: contextualise, think, conceptualise, experiment and evaluate. They have also created a list of mandatory skills of their professors to ensure the fulfilment of their teaching model proposal. Ultimately, this model is based on a pyramid of competences regarding values (such as ethics or personal development), attitudes (such as autonomy or collaboration) and learning (such as thinking or experimenting) (Unidad de Innovacion Docente, n.d).

Another case is the one from LEINN, a degree from University of Mondragon based on Nordic Countries teaching methodologies. At the beginning of the degree students are asked to create their own business with members of the class. The aim of the following years is to work as a team in real professional conditions, with customers and operations completely real. The final goal of this degree is learning by doing and never stop trying to find solutions from the challenges posed (LEINN, 2021).

Focusing on the local market, UIC has a program named Teaching Innovation Classroom. The main goal is to facilitate the implementation of staff proposals of innovation. The university provide a space to share the ideas in which they are studied and prepared to be implemented. This initiative not only broad current research and innovation within the university, but also incentive teachers and reward them for their achievements (UIC, 2021). In terms of digitalization, UIC provides to their students the e-certificate, a digital copy of their degree' certificate that aims to accelerate the acquisition of the certificate and reduce economic and environmental costs (UIC, 2021).

Coming back to teaching methodology, Abat Oliba CEU presented ePlus, a program that focused on working on the most demanded competences in the labour market specifically for every degree. In addition, they base their teaching method in doing and

learning (learning based on critical thinking) and deconstructing knowledge (dividing general content into small pieces of information to teach in a way that makes sense) (Universitat Abat Oliba CEU, 2021).

Lastly, UOC deployed a Student Information System to manage in an integrated way all data that comes from students. Moreover, the university provides specific hubs of innovation and research according to the fields of study, such as eLearn Centre or eHealth Centre (UOC, 2021).

4.1.1. Customer & Data

With regard to the digital age and from a strategic point of view, customer vision has evolved towards a dynamic and a human approach. Starting with the word customer which is no longer a singular term since value is delivered to a full network composed of end customers, partners, investors, press, government and even employees. In fact, the way by which they are linked and interact with each other has a direct impact on the connection with businesses, their reputations and their branding. This network is not only changing the traditional approach of the customer' relationship and customer's journey but also leveraging new value prospects co-creation (Rogers, 2016).

For instance, Buffer uses the hashtag #BufferCommunity by which users can publish their personal photographs which are used by the company with a non-promotional purpose. On the other hand, Hootsuite share #HootsuiteLife for their employees in order to post their daily labour activities (Sordo, 2018).

Hence, this value poses the need of engaging with customer networks where it can be identified key partners for an innovation process. Moreover, businesses need to establish bidirectional relationships with customers and understand them as influencers as well. Ultimately, marketing goals encompass not only purchase but also loyalty and advocacy, resulting in customer-centric economies of value (Rogers, 2016).

Marketing funnel might be identified as a framework designed to have a complete understanding of the journey that customer takes from the recognition of a need, the awareness phase, to the stage in which they become promoters of the brand, the satisfaction stage (Colicev, Kumar, & O'Connor, 2019).

The main aim of companies is arguably to conduct customers to the action of acquiring the product however the funnel poses the need of taking into account the engagement, nurturing and repetition of purchase by which customers are going to become brand evangelists and consequently spread the business throughout the network. To achieve this, it is necessary to build an omni-channel customer journey, an experience that links every touchpoint where the customer might have contact with the brand (Rogers, 2016).

Regarding to educational sector, customers, current students, identified as Millennials, were born in a technological and communication environment that has leveraged their need of being constantly connected (Cataldi & Dominighini, 2015). Moreover, behaviour and values that represent them require a learning approach that is increasingly becoming further away from the current offering (Gisbert & Esteve, 2011). Notwithstanding, the real challenge is in the next student generation. Born after 2000, Generation Z presents a completely different way of learning when compared with prior generations. They have been leading with a volatile environment since they were born which makes them self-sufficient, independent and with no need of reference figures when making decisions (Luz Antúnez, 2020).

Coming back to employees as part of the customer network, how employees feel at their workplace influences elements such as their satisfaction, engagement, dedication and more importantly their efficiency. Therefore, the relationship between companies and their workforce needs to be more human and respond to their necessities (Plaskoff, 2017).

Professors are identified as key agents of change. Considered a basic skill, TIC is required in order to perform as teachers in higher education institutions. Is the institution who is in charge of implementing methodologies to promote and ensure the proper implementation of new technologies (Porlán, 2014).

In light of the above arguments, they will be able to broaden their skills spectrum and work in a more autonomous way, which is going to have a direct impact on students. The most highlighted tools are those that boost student's active participation and collaboration. Nonetheless, to achieve this approach a switch in the culture of the organisation is arguably vital (Prendes Espinosa & Gutierrez Porlan, 2013).

In the same way that cars need gasoline to run, customer relationships need to be fed with data in order to create meaningful and seamless experiences. From a strategic point of view, data needs to be seen as an asset within the organization. On the one hand, data generation has become costless and, therefore, the goal businesses need to follow is converting this data into relevant information since its crucial for the value creation process (Rogers, 2016).

When it comes to customer data, the main problem detected across industries is that companies are still focused on the product and how its sales can be increased. Correspondingly, the process to get and experience this product is not enriched and, therefore, future prospects are downplayed. Research shows that a customer data strategy focused on the experience has a direct impact on increasing rates of loyalty, differentiation strategies, customer satisfaction and new forefronts not inspected before. As an example, customers are increasingly interested in consulting their own data owned by the company or taking part in processes of value creation (Saarijärvi, Karjaluoto, & Kuusela, 2013).

When data is properly exploited and introduced to business value, it has a wide range of benefits. Firstly, data is a source to study and analyse customer behaviour, which implies the creation of segments regarding specific characteristics shared by the audience. These segments can be impacted with differentiated messages, by different channels and even with different elements within the message. Going a step further, if companies have information about each and every customer, why not impact the audience with relevant information for each individual separately. Finally, providing the right space where customers can share their data with others within the network will evoke an automatic generation of data, provided by the customer without the need to ask for this information.

Data is acknowledged to be relevant for companies but its real success is in the organization and employee's mindset. They need to incorporate data in their daily performance (Rogers, 2016).

Given that, there are different examples across the education sector in which data has been a crucial asset to improve business performance. For instance, UWE Bristol (UK) was experiencing a reduction in the application rate of undergraduate students. It was

acknowledged that they were facing a completely different target and not adapting to new customer behaviours was on the verge of having a detrimental effect. The university developed qualitative research in order to gather insights about the media, device and content consumption. As a result, they launch a completely integrated campaign throughout different channels and with real photographs of the campus. Being incredibly appealing to future students, UWE Bristol increased the application rate by 4,76% and the attendance to open day by 11% (n.a, 2017).

Another example is focused on Alumni. University of Southampton (UK), three years ago, was facing a flat evolution of their Alumni engagement. Being an opportunity to become ambassadors or influencers within the student network, the university undertook a campaign to boost university membership and lifelong learning. The campaign was twofold. Firstly, it was conducted qualitative and quantitative research in order to create an outstanding segmentation strategy. This first part included a testing period of the communications that the final campaign was planned to have. The second phase was the launching of a platform in which users were able to interact with each other via music tastes. With this campaign the university not only had the opportunity to explore new channels of communication and content typologies but also increase the engagement from 20% to 41% (n.a, 2018).

4.1.2. Operative Model & Organization

As observed throughout this project, digital technologies affect the way in which customers, competition, data, innovation and value are traditionally approached. That is why, a holistic and embedded mindset is crucial to adopt a change (Rogers, 2016). Among the different elements encompassed in a DT process, there can be identified practices, structures and beliefs. The combination of these elements may result in emergent organisational and institutional structures (Hinings, Gegenhuber, & Greenwood, 2018). Indeed, when defining DT, different authors stated the modification or adoption of business models which are closely linked with business strategy (Kotarba, 2018). This strategy might be addressed from two critical points of view, digital capabilities and leadership ones (Pérez-Luyo, 2020).

As far as the digital age is concerned, there can be identified a wide spectrum of companies that have created and adopted business models that are far from the

traditional ways of doing. For instance, the fintech industry may well be identified as one of the pioneering sectors of new business models undertaken. Digital banking allows its customers to operate whenever they want in a costless and easy way. As a result, companies can focus their activity on constantly experimenting and improving their products and services according to the data they gather from their clients (n.a, 2019).

Success of DT might fall to question current ideas, procedures, collaborations and ways of doing and thinking to create new ones. And more importantly, sharing this mindset throughout the organisation (Rogers, 2016). A survey conducted by different CEOs concluded that 70% of DT projects were not able to meet their aims and the most common reason was the lack of people's mindset to change. Tabrizi et. al. (2019) identified different aspects to achieve outstanding results when undertaking a DT process. In the first place, technology as a single term does not translate to DT. Transforming implies going a step further and adopting a fully business strategy. A crucial element to boost this strategy is the workforce. External vision and insights are a big help; however, internal perspective is broadly valuable since who better knows how procedures and communication works are employees. Lastly, as DT is innovative and therefore uncertain, actions taken need to be constantly assessed in order to adjust them by leaps and bounds. To achieve this, the culture that companies might adopt is the one led by start-ups (Tabrizi, Lam, & Vernon, 2019).

Known worldwide, a start-up is a human unit created to develop new products or services within a high degree of uncertainty environment. Their culture is focused on the learnings from an ongoing process of testing and validating. Teams are composed of different profiles and are evaluated through learning milestones, which allow every single member of the team to evaluate its own performance and feel part of the organisation outcome. Ultimately, their business model is composed of three phases: create, measure and learn. This results in a strategy that includes operative model, product mapping, stakeholders' network, competitors and client prospects. Therefore, the product is at the end of the chain pushed by all the other elements (Ries, 2012).

Procter & Gamble undertook five years ago a project based on Lean start-up methodology and which consist of a group of experimentations led by multidisciplinary teams with the aim to learn from the results of each and every experiment. The huge success led to the adoption of this methodology as part of their business model, which

allowed them to launch an MVP of different products in less than half of the time they normally needed (Program, 2021).

4.1.3. Value proposition & Technology

Despite the fact that industries traditionally tap the full potential of their value proposition to position themselves within the market, during the digital revolution this practice is no longer enough to be competitive. Companies need to evolve before the market forces them to do it, the key point is to foresee the next value proposition and not act in the present one (Rogers, 2016).

The value proposition is shown to be of utility when it responds to current and ever-changing customer behaviours and also new technological marvels. As a starting point, there might be three areas identified in which new value can be created: emergent technologies, customer socio cultural features and unfulfilled customer needs. Understanding and research within these three dimensions are of utmost importance, businesses need to switch their focus from product to the customer (Rogers, 2016).

Once having analysed customer needs and behaviours in the Customer & Data dimension, it is important to research those solutions that fulfil them.

In terms of emergent technologies, AI is based on the premise that machines can develop tasks intelligently normally developed by humans. It allows institutions to deliver feedback on tasks and provide personal and virtual assistance. The systems that are becoming popular within the higher education sector are Learning Management Systems (LMS) and Student Information Systems (SIS), among others. For instance, University of Oklahoma has a chatbot service based on AI to access library services, allowing students to search and discover resources. Regardless of the evident time and cost that developing a chatbot implies, the benefit is much more worthy as universities can gather 24/7 data from their students (Brown, et al., 2020). Another example of AI application is the tool Questo, which creates questionnaires from the content captured in a photograph. Students can scan pages or entire units and get immediate questionnaires to test their knowledge (ESIC, 2018).

Analytics is another key milestone that a wide spectrum of universities are using. Thanks to tools such as LMS data can be gathered and integrated in a cross-functional way.

Traditionally, data that has been exploited is about enrolment rates and general students' performance. But the market is changing to an individualised assessment of each and every student. This mindset has a direct impact on student performance as they have personalised guidance to fulfil their personal objectives (Brown, et al., 2020).

In the field of extended reality, the application of this sort of technology might be known as immersive education. The main advantages are the rapidness, transparency, retention and efficiency delivered to students (ESIC, 2018). Institutions might be studying their potential through specialised labs or projects. The main aim of this technology is to provide students with the facility to access places, experiences and atmospheres without the need to be there. As an example, University of Leeds, has amplified the practical offering with extended reality experiences. Students are able to attend real hospitals to put their theoretical knowledge into practise as it has been traditionally, however, they have the opportunity to start doing it in the first years of their degrees and with much more recurrence than ever before (Brown, et al., 2020).

As far as teaching methodology is concerned, there are different tendencies that have become highly popular over the last years. One tendency pinpointed within the higher education market is "a la carte" degrees by which students can attend university to gain skills certifications, microcredits or accreditations (Brown, et al., 2020).

Thanks to technology, teachers can be globally connected with other professors around the globe. This allows projects to be shared and developed among different countries. Rumii uses AI to allow students to create their own avatar and interact with other members of the space sharing documents or delivering presentations (ESIC, 2018).

Emergent technologies, methodologies and ways of working might seem appealing for every institution; however, it is important to bear in mind that like other innovation they require a process of research in order to analyse its viability and requirements. As a result, several institutions might be bringing the bases of Design Thinking and User Experience to the development of teaching methods. Thanks to this sort of agile methodologies, Duke University has compiled a broad range of resources and tools that can be delivered intelligently to students in an individualised way thanks to the data from their LMS (Brown, et al., 2020).

Another key aspect that needs to be taken into account when defining and innovating the teaching path is labour market demand. From a research conducted to different business people, experts and academics have highlighted the most demanded competences when recruiting young talent. As a result, it can be outlined: analytical and adaptation capacity, team work, transformational capacity, responsibility, autonomy, emotional intelligence to comprehend different contexts, critical spirit, concern to learn, communication abilities, solution centred, transversal vision, leadership, creativity, strategic vision, negotiation abilities, entrepreneurship, among others (Bartual-Figueras & Turmo, 2016).

Finally, a study published by Michael Page shows the most demanded digital profiles within the DT age. The departments that will be highly impacted will be marketing and advertising ones with profiles such specialised as UI/UX Designer (who defines the user experience from an artistic and graphic point of view), Product Owner & Scrum Master (who informs teams about customer needs in order through agile methodologies), Programmatic Trader (professional in charge of digital media purchasing) and Conversion Specialist (who defines and ideate ways to improve conversion rate through experimentation, validation and learning) (Page, 2020).

4.2. Internal analysis

Being a private university with public funding, TecnoCampus was conceived as a technological park in 1981. It is attached to Pompeu Fabra University and composed of three schools (School of Business, School of Engineering and the School of Health).

4.2.1. Customer & Data

Focusing on the education sector and more precisely on TecnoCampus, two main segments of customers might be identified. On the one hand, students composed of four target groups (future students, degree students, master or postgraduate students and alumni). On the other hand, a total of three hundred and eighty-four employees which are divided into two segments (professors and service staff) (TecnoCampus, 2019).

The following assessment is theoretically underpinned by the West, Ford and Ibrahim criteria for segmenting, positioning and targeting (West, Ford, & Ibrahim, 2015). In the first place, each student and teachers' group has been analysed in order to have a

complete and deep understanding of the target market since it includes demographics, geographics, behaviour and psychographic features. Nonetheless, since this workstream is focused on customer's behaviour and its link with the marketing funnel, the multidimensional criteria used focus solely on the behaviour and psychographic features.

Firstly, future students are considered those students born after 2000 and thus acknowledged as Generation Z, a challenge for educational institutions and labour market (Dias, Caro, & Gauna, 2015). They were born in a constantly changing environment led by uncertainty and emergent technologies and, consequently, they do not have any problems regarding flexibility and adaptation (Luz Antúnez, 2020).

On the subject of learning, they present features that differ completely from previous generations (Luz Antúnez, 2020). Having a strong multitasking ability, there is a lack of productivity and concentration in the majority of tasks they develop. Indeed, they cannot be focused on one activity and tend to look for a broad range of challenges. Their personality makes them competitors, independent, self-sufficient and inpatients. Surprisingly, education is not as important as it might be for other generations as a part of their lives (Dias, Caro, & Gauna, 2015).

Social media are their main channel of communication and they have a direct influence on their interpersonal characteristics which implies difficulties in concentration when listening to others (Dias, Caro, & Gauna, 2015). The most popular social media are Instagram, Whatsapp, Youtube, Tik Tok, Twitch and Spotify (IAB Spain & Elogia, 2020).

Ultimately, there is a serious concern about the environment and a high participation in social activism (Luz Antúnez, 2020). Nevertheless, without the necessity to have others approval they are used to have a wide variety of products and services to choose from and personalization is key in the purchase process (Dias, Caro, & Gauna, 2015). To consult the complete analysis of future students, visit Annex 1.4.

Degree students might be identified as those people from 18 to 24 who are currently studying at TecnoCampus, and considered as generation Millennial (Gisbert & Esteve, 2011).

Regarding their behaviour and personality, this generation is used to work in teams, is multitasking, flexible and a rapid thinker. When a task is presented, they are demanding with themselves, pretty curious and self-confident in what they are developing (Cataldi & Dominighini, 2015). In fact, they expect more attention and personalized feedback from their teachers in order to be more prepared towards the labour market. Moreover, easiness and real-time are key when accessing information since they undervalue ambiguity (Aviles & Eastman, 2012).

They are constantly connected and require the Internet and devices in every interaction they have. As a result, they want immediate information and responses to problems. In regard to learning methodologies and resources, they have the ability to use different devices at the same time which implies a favouritism for those tasks developed completely with technology (Cataldi & Dominighini, 2015) (Gisbert & Esteve, 2011).

As far as online behaviour is concerned, millennials use social networks for both social and academic aims. Concerning profiles followed, the 66% of the activity developed online is related to informative purposes and the 43% is focused on contacting brands' services. Education is situated at the ninth place when assessing brands followed. In order of preference, they use Whatsapp, Instagram, Facebook, Twitter and Telegram (IAB Spain & Elogia, 2020). In terms of content, video is the most popular format and music, information and tutorials are the ones mostly viewed (Cardona, 2017). To consult the complete analysis of current students, visit Annex 1.5.

As mentioned in the external environment, employees might be considered as part of customers. Teachers might have knowledge of their field of specialization and understanding of the ways in which this knowledge can be theoretically and practically spread. Moreover, they need to encourage students with appealing learning methods and try to be active in the process of learning improvement. All staff members may have communication skills, TIC skills, expertise in the department they are working in, be up-to-date with sector trends in order to assess them and decide whether to incorporate them or not and finally being proactive (Mas, 2011).

In respect of psychographic characteristics, the workforce might be management and direction oriented, customer-centric and work with a vision that follows the values of the

company (professionalization, entrepreneurship and internationalization). To consult the complete analysis of PDI & PAS, visit Annex 1.6.

4.2.2. Operative Model & Organization

Regarding legal structure, TecnoCampus is managed by a Foundation composed as a *Patronat* which is in charge of the government, administration, representation and management. Foundation's chairman is coordinated through Mataró City Council. TecnoCampus' CEO main task is to manage the daily tasks of the organization and fulfil all the competences delegated from *Patronat* and the Chairman. This 2021, the organigram has experimented some changes regarding functionalities and people rearrangement. To see the full organigram, consult Annex 1.7.

Moreover, it can be identified four coordination mechanisms. Permanent Commission which ensures the action of the government of the Foundation, from the compliance of the Strategic Plan, the execution of the current budget and the coordination of the approved Action Plan by *Patronat*. The Steering Committee coordinates all organizational units. The Academic Committee coordinates the three schools. The Operative Committee coordinates all the projects mainly in the business pillar. Accordingly, decisions and projects approvals are subject to four mechanisms of coordination, the CEO, the Chairman and the *Patronat* members; which makes the decision-making process complex and slow.

In terms of strategy, TecnoCampus acts in light with the Strategic Plan 2022 recently approved. The main goal of the plan is to guide the institution towards its consolidation embedding economy, knowledge, progress and social commitment. And, therefore, pursue excellence through the current core pillars of the education model. This plan is based on four strategic areas: quality in the academic model, evolution of the park concept towards the TecnoCampus distinct, driving force behind local economic development and innovation and approach to funding and organisation consistent with challenges. In response to what Covid-19 has implied in the educational sector, Academic Board presented a contingency plan for 2020-21 academic year with safety measures and guides to ensure the degrees progression (TecnoCampus, 2021). Furthermore, SQAI developed a site that aims to be a support platform regarding new classroom formats. It provides information about how to develop a streaming class, how

to adapt learning methodologies to the new normal, how to create a Zoom account and make the most out of it or how to set up tasks in *Aula Virtual*.

One of the numerous strengths of TecnoCampus is arguably its powerful resources network. In terms of intangible resources, academic management is in charge of the tasks related to degrees enrolment, academic transcripts, certificates, grants and scholarship insurances. *Punt d'Informació a l'Estudiants (PIE)* is the students support department which manages all their requests. Finally, CRAI is the library service that provides bibliographic sources, borrowing services and tests automatic correction. Regarding human resources, apart from those members previously presented, there are three departments related to them. People Management is focused on contracts, recruitment, labour relationships and risk prevention management. General secretary is in charge of norms and regulations compliance, partnership contracts, strategic planning, insurances and performance indicators management. Lastly, Communication department ensures corporate reputation and image and manages offline and online marketing.

In regard to financial resources, there are two departments focused on finance: economical management and treasury and purchases. The 80% of the income of the university comes from State-regulated education, while the main expenses (57%) go for the staff. In terms of investment, TecnoCampus planned to invest 684.269€ on projects last 2020 (TecnoCampus, 2021).

4.2.3. Value proposition & Technology

TecnoCampus product and service offering is part of an ecosystem in which degrees, post degrees and masters are underpinned by three cornerstones: internationalisation, entrepreneurship and professionalisation (TecnoCampus, 2021). TecnoCampus' static value proposition might be "*Degrees, post degrees and masters within the branches of business, health and engineering with a broad range of services encompassed in a technological and entrepreneurial ecosystem*".

Twenty-seven-degree qualifications, postgraduate and masters are currently being offered in TecnoCampus. Additionally, students are given the option to undertake joint honours in each school combining degrees that can also be studied separately

(TecnoCampus, 2021). From Covid-19 adaptation, there are two new class methods. Hybrid class, where the half of the group is learning from home and the rest is on-site. The second option is the remote format which is fully online, this option is mostly provided to those undergraduate with experience within the university.

Eventually, the university has a wide range of services classified by international offering, professionalisation and entrepreneurship. As far as technological assets are concerned, SQAI is a department focused on educational innovation and with the aim of ensuring the quality of the educational model both for students and professors (TecnoCampus, 2021). Students can access their subjects, assessment marks, subject materials, IT support and academic records via a Moodle. Furthermore, e-Secretaria is a recent proposal for students to request and monitor their academic procedures (TecnoCampus, 2021).

4.2.4. Interview's conclusions

Regarding communication with students, there are two channels by which students receive information from the university. On the one hand, the communication department uses email to send a monthly newsletter with the latest updates of university activities and business park. Moreover, students receive emails from the secretary of the centre regarding subjects or university official notifications. On the other hand, social media is a tool used to deliver relevant information in a more user-friendly way.

TecnoCampus exploits data from two points of view. From an internal perspective, students are assessed quarterly on subjects' success. Additionally, there is a survey every final term asking about university services. This survey is also delivered to employees but in an extended version. When students finalize their degrees there is a survey, they are required to complete related to degree satisfaction. The results of students' surveys are only analysed by the degrees' coordinators and if they are not in line with the teacher's performance expected, they are also checked by the teacher in detail. Moreover, the surveys are general for every student, degree and school which implies that personalization is non-existent. In fact, the quality department recognises that the lack of participation in these surveys makes it difficult to use them as a tool of decision making. It has been displayed the surveys' participation classified by the type of survey conducted and its evolution from 2018 to 2020 in Annex 1.8.

The vast majority of activities undertaken throughout the degrees are not tracked. Nor part of their activity as students. In fact, students are monitored by another area which is not the marketing department. Student's activities are managed from different departments regarding its core goal. PIE acts as a transversal department because it centralises all students' requests and provides feedback from the different issues to each department in particular. These requests are monitored with a platform called Helpdesk in which extractions of data can be done.

Where there is a planned data collection task is with future students. The department has developed a lead generation strategy in which future students are scored regarding their probability to become students. This information is stored in a customer relationship platform, where lead's information can be enriched manually. When these leads are about to become new students, they migrate to the PIE department where they are personally attended. Consequently, traceability is lost as departments do not have data in a collaborative platform. Thus, the marketing department identifies a drawback in this area since customer journey cannot be fully monitored. As a result, reporting done by the marketing department focuses solely on the leads and, indeed, these reports are developed by another department resulting in double workload with no purpose.

Overall, data is arguably not understood as an asset since departments considered data insights important but they do not exploit their full potential. However, the need to undertake this practice might be acknowledged. Where there is a serious flaw is in employees' data and relationship between them and the institution. For instance, it has been reported that some new professors might be completely lost at their arrival to the university since there is not a standardized training program and the tutorials prepared for the usage of different institutional tools are not mandatory. Data and results of individual performance are not shared and neither centralised, which makes it difficult to make decisions from a holistic point of view. There is a lack of a platform where different departments can check students and business performance data and reports 24/7 without the need to be in contact with the marketing department. Moreover, analytical tools and reports are developed isolated by SQAI and digital marketing which implies a larger workload for these two departments.

Table 1 shows the insights gathered from the twelve interviews conducted.

Table 1

Insights gathered from interviews

Communication and marketing department	**Customer & Data** • There is a newsletter (PDI & PAS) monitored by human resources, but with no periodicity and there is not a planification • Employees receive also the same newsletter as students • Students receive this newsletter through email (50%-60% open rate) and Instagram • KPIs analysed: clicks, open rate, topics of interest), in general terms they have a notable when evaluating our communication • They control all the funnel but not the bottom part, in which the lead is send to PIE • Currently emails are not automatized from CRM, they are delivered from Mailchimp • A project for the new website is in progress • From the same information, they develop a report both in the marketing department and university promotion department. The report from university promotion includes slides presented by the marketing department in previous meetings • They calculate the Students' Cost Acquisition; we start the funnel with students from 4th of ESO • The funnel for TecnoCampus' students is not developed, here is where Campus Services Department enters • They have profiles of students developed but they need to be repeated • Data collected from future students: name, surname, email (legally a lead), but they need the degree in which is interested in order to activate this lead • They do not personalize communications with audiences since they do not have the tool to identify IPs • They use audiences through email and cookies that save information during 90 days (but only with future students) **Organization & Operative Model** • Communication department is with marketing department • Some events are jointly created with university promotion • DT considered as a switch from traditional channels to digital channels, the department does not see their implication in DT • Flexible, as their based their activity on students searches • They work according to other teams' requests (most of their work is with this model) • Weekly meeting (2 hours) where they evaluate the requests and propose formats, share stoppers and tasks planning • More reactive than proactive, since they propose events and activities according to key moments within the year

	• Ways Of Working: request > analysis and internal channels proposal > proposal to the department in particular • In charge of the design of degrees campaigns, presented to the Academic Committee and then it is presented to the managers of each degree • Communication plan developed yearly • Budget: 150.000€ (80% for digital marketing) • 1 person (strategy, management and daily controlling) + external agency (campaigns operation) • DT regarding the marketing department is about establishing direct communications with future students, digitalising processes. It is not about tools but is how to use them to achieve a goal. • Budget: 40.000€ for degrees, 18.000€ for masters and 25.000€ others **Value position & Technology** • University orientation activities is not included in the department • Zoom for meeting, Scrum for external projects, Excel for the annual plan, Briefing tool for the organization requests, DataStudio, Power BI, Google Tag Manager, Google Analytics, Google Ads, Teams, Office 365, InDesign, Photoshop and Premier • Current CRM is fed manually - A marketing automation tool is being evaluated • Technology used comes from organization's impositions • To analyse new tendencies they study the market, the advantages, resources and then the decision is made by the superior departments • There is not any continual study of market tendencies • Institutional events are standardized year by year and there is not any data collected from the audience
SQAI, Quality and Teaching Innovation	**Customer & Data** • Annual assessment of Aula Virtual with a standardised evaluation method in order to detect improvements and then is up to organization's approval • Data used: from annual and quarterly surveys, Google Analytics to gather insights from Aula Virtual and Zoom usage • KPIs analysed: nº of sessions, average time in site, pages load time • Teacher's training is composed of internal training of the current learning tools (done quarterly). There is the possibility to ask for specific training. There are no mandatory training sessions • There are 3 employees groups identified regarding training • Surveys from university activities are independently • Surveys' results can be checked by directors, coordinators and each teacher in particular • Training is composed of two blocks. One at the end of each quarter (more about current tools used) and another block in Summer where they are presented different innovative proposals • There is a project call by which teacher have to make their own innovative proposals and best projects are rewarded • Three schools wanted to take part in a project jointly about different topics related with technology, gender perspective and writing abilities • Student's data is not used

	Organization & Operative Model • This department is conformed with three units (quality, teaching innovation and learning support) • DT is understood as the harnessing of both technological capacities and features in order to incorporate them into internal processes and make them more efficient. And moreover, increase the quality of the output • Flexible, as they are digitized in terms of technology usage but there is room for improvement in terms of cultural mindset through the usage of these technologies • Covid-19 has made it clear that DT is necessary • Budget: 100.000€-120.000€ • They have tried to use different planification tools but without the culture to change is difficult to incorporate them • There are no standardized methodologies • The great majority of tasks come from Pompeu Fabra and from these requirements, they create a calendar • They work with directors of each school • Internally, there are no regular meetings • All the documents and procedures are approved by a Quality Commission • Most part of the activity is reactive **Value position & Technology** • New methodologies can be incorporated in one week, if it requires changes is the planning of the subject it require a complete academic course • If the necessity of a new methodology or tool is required from a teacher, then the solution is personalized. • Current Zoom usage: 66,53 average assistance, 1:55 average time session • Current Aula Virtual usage: 17.585 users, 12.73 sessions per user, 00:09 average session and 2.26 load time. • KPIs analysed: subjects broadly passed, subjects broadly failed, teachers with bad reviews… • They are in a project about documentation organization, identify representation of each procedure and identify who have them saved, etc. • Quality is not adapted to each school • There is not a periodic study of the market tendencies, is more about necessities from teachers or issues from students' surveys • Methodologies and tools are not implemented equally in the 3 schools • DEMOLA is a new project that joint circular economy, digital transformation and people happiness, will be undertaken during the 3rd quarter and it will be conducted by a team of TecnoCampus' students and international students. The next step will be how the proposals presented can be developed in future • There are no partnerships with other entities, there are win-win agreements • Internal projects are now coming from internal needs
Degree coordinator	**Customer & Data** • Satisfaction surveys are used to assess what is working and what is not. The coordinator obtains its own reports regarding this data. • There is no feedback gathered from activities

	Organization & Operative Model • In some cases, they have had alliances with Marketing Club of Barcelona • Students proactively organize events too • DT is the way in which institutions adopt technology, not bringing current processes to a technological environment but transforming them thanks to technology • Flexible, when talking in general terms • Dropbox, OneDrive, Outlook and Trello **Value position & Technology** • Technological solutions or tools are left to SQAI • They evaluate how they use this technology • Normally, changes in students' plans come from coordinators
PIE	**Customer & Data** • They are focused on 2 different groups: current students and future students • They follow incidences results in order to establish prioritization and extract final reports • They do not have information about the lead and neither a following of every call • Data can be filtered by ID but they do not include this segmentation to the reports • Reporting is created annually from the information extracted from Helpdesk **Organization & Operative Model** • DT as an adaptation that all companies must adopt based on today's technological tools. These tools need to be chosen according to the features of each institution • Flexible, since Covid-19 has demonstrated that is possible • Tools: Helpdesk (ticketing platform) mandatory in all requests • Proactive attitude to the creation of new projects within the department • They proactively present problems and incidences to the departments in order to help them improve their performance **Value position & Technology** • SharePoint and Teams • Current project: make the requests process for students easier
People management	**Customer & Data** • Digital competences are not a must in thier processes • They also use channels within Teams in order to communicate updates • They have tried to work together with communication department in a project for internal communication but is currently paused do to Covid-19 • Data from employees: they have a heat map indicating the star employees in order to help them to establish internal promotion

	• KPIs: teaching quality and research **Organization & Operative Model** • DT understood as the application of new technologies to improve work, processes and what is being done at the moment • When talking about flexibility, half of the department might be 100% flexible but the other is not. As an example, it is difficult to introduce new tools or methodologies to labour relationships • They do not develop a periodic analysis of market trends since they look for new tools when they have the necessity • 2020 projects: migrating from paper procedures to the app, the new organigram and the revision of all the processes to make them more agile • 2021 projects: improve current processes map since there is a huge number of procedures done in paper **Value position & Technology** • Planner, linked with Teams, Trello was a proposal but it was not implemented and there is an app (form an external vendor) that allows employees to have contracts digitalized and do all the procedures online

School Director	**Customer & Data**
	• Data form surveys, informal comments and formal complaints are taken into account when making decisions
	
	Organization & Operative Model
	• DT is understood as a change and shifting from the analogue to digital. Covid 19 has accelerated the knowledge of tools and its usage which implies a great benefit for the university
	• Tasks organized according to their origin. If they require contact or if they are back-office tasks
	• Biweekly meeting of 2 hours with direction team and monthly meeting with board management
	• Once in a quarter with board management and some other members of the other departments
	
	Value position & Technology
	• Tools: Teams and Zoom for meeting but there is any tool for organization
	• Current director plan:
	  ○ Accredit all the degrees without any condition
	  ○ Offer new products (masters offering has already been broaden, but there is room for improvement in the degrees area)
	  ○ Increase research and make professors be PhD
	  ○ Promote current relationships with Alumni, letting them be part of the community for life and taking advantage of it through conferences, TFG tutors...

Professional careers	**Customer & Data** • Channels for promotion: social media, website, emailing, newsletter, banners, Moodle and university screens • Activities feedback through surveys and control of the attendance. The feedback from internship programmes is only gathered in curricular internships

	Organization & Operative Model • Department focused on professional programs management, conferences, talent forums… • They actively do market research in local and national territory • When they receive a proposal the assess its viability and the main aim is to offer innovative stuff • They define to marketing department what they need and marketing department share the results of the campaigns **Value position & Technology** • Teams and shared documents in Drive • Activities are chosen regarding previous years success, participants feedback and coordinators valuation. The success of the activity is assessed through the value more than the attendance
CEO	**Organization & Operative Model** • DT is understood as the arrival of technologies to organizations and is linked with the impact that might have in the definition of new processes, ways of working… • Digital capabilities are important (8 in a scale from 0 to 10), but what is really important is people • TecnoCampus culture might be associated with commitment • When deciding a project approval, the key drivers for the decision might be financial needs and impact • For huge projects, he thinks that external methodological knowledge is necessary but always with the insights and the implication of the whole organization **Value position & Technology** • TecnoCampus in 5 years: make learning path a long-term proposal, invest more on research and innovation, growth our human capital and a transformation of the current learning offering
SIPU	**Organization & Operative Model** • Strategic Plan 2025 contains a part of Digital transformation and inside there are different small projects: documents management digitalisation, indicators management, teaching platforms improvement… • DT is understood as the incorporation of technology into processes and operative tasks. Is a tool of support, growth and change • There are flexible considering this year's response to Covid-19 • There is not a standardized process of monitoring the plan performance • When assessing projects, the key elements might be the service offered and the budget • Next projects: planification and study of the business model of the continual education area, integrate different school' secretaries as a department, broad the current function of international relationships and boost an entrepreneurship hub as the entrepreneurial offering is a weak point

Source: Compiled by the author

4.3. Digital Maturity Rate

Coming back to the Digital Maturity Framework, a system of rating has been created in order to obtain TecnoCampus' Digital Maturity. Each statement should be rated with a number between 0 and 3. Statements rated with a 0 or a 1 may be translated into recommendations as they need a longer period to be implemented or a higher economical effort. Furthermore, those rated with a 2 might be translated into quick wins since they are already taken into account within the university and imply a lower effort. In order to see the detail of this correspondence, visit Annex 1.9.

To link this analysis with a Digital Maturity phase, four phases have been identified after reviewing the literature in terms of Digital Maturity. Visit Annex 1.10 to consult the detailed explanation of each phase. Profile column corresponds to the name different authors and institutions have given to the DT status. Each phase created count with a detailed explanation in terms of dimensions status.

From the Digital Maturity Framework assessment, an accumulative rate will be obtained. Since the highest rate is 3, the maximum rate for the whole framework can be 312. This total has been divided into four blocks in order to link Digital Maturity Framework assessment with the results part. The complete table can be observed in Annex 1.11.

The framework has been fulfilled with the data collected from the interviews and the analysis developed of TecnoCampus' assets. To see the full transcription of the interviews, see Annex 1.12.

Fig. 1 displays the framework completed.

Figure 1. Digital Maturity Framework analysed

DIMENSIONS	ASSESSMENT: Completely disagree (0)	Somewhat disagree (1)	Somewhat agree (2)	Completely agree (3)	TOTALS	Next step
Customer (Students & Employees)						
Customer data is being collected, analysed and used			■		2	Quick win
There is a CRM				■	3	n/a
There is a CRM strategy	■				0	Recommendation
Information and data are a transparent asset used in decision-making process		■			1	Recommendation
University is focused on customers' changing digital habits and path to purchase	■				0	Recommendation
Customer is taken into account throughout the whole customer journey		■			1	Recommendation
Customer journey is managed in an integrated way among all channels		■			1	Recommendation
Customer participation is a driver of business success		■			1	Recommendation
There is a marketing funnel created				■	3	n/a
There is a customer journey or customer lifetime value model created			■		2	Quick win
There is a customer strategy to obtain data			■		2	Quick win
Communication strategy is omni-channel focused		■			1	Recommendation
Employees are rewarded for long-term goals and new strategies	■				0	Recommendation
Employee data is being collected, analysed and used		■			1	Recommendation
Employees receive traning of emergent TIC tools			■		2	Quick win
Employees receive training of emergent learning methodologies			■		2	Quick win
There is a segmentation strategy			■		2	Quick win
Communication is personalized through audiences			■		2	Quick win
Real-time information is delivered to customers	■				0	Recommendation
There is an app to deliver information to the customer		■			1	Recommendation
There is a team specialised in customer experience	■				0	Recommendation
There are recognised capabilities for customer insights, project management and direct marketing	■				0	Recommendation
Data is understood as an asset			■		2	Quick win
The main priority is creating value for clients			■		2	Quick win
Data strategy is based on how to turn it into new value		■			1	Recommendation
Decisions are made after experimenting and testing		■			1	Recommendation
There is a team specialised in analytics	■				0	Recommendation
Operative model & Organization						
The company has recognisable digital capabilities			■		2	Quick win
The company has recognised digital skills			■		2	Quick win
Digital transformation is in the vision of the organization		■			1	Recommendation
There is a specific investment for digital/technological solutions		■			1	Recommendation
Technology is being used in operative tasks			■		2	Quick win
There are specific teams for digitalisation plans		■			1	Recommendation
There is a digital transformation plan		■			1	Recommendation
There is a team specialised in digital media purchase				■	3	n/a
There is a team specialised in web & mobile development			■		2	Quick win
Current digital work-streams are integrated		■			1	Recommendation
Digital transformation is recognised as a key for business growth		■			1	Recommendation
Data is acknowledged as a key to new business models		■			1	Recommendation
Digital transformation is understood as an holistic strategic approach		■			1	Recommendation
Operative model change is welcomed			■		2	Quick win
Teams/departments are working in a collaborative way		■			1	Recommendation
When digital challenges are identifies there is an standardised process to respond	■				0	Recommendation
Marketing and technology teams are constantly collaborating			■		2	Quick win
Digital skills are considered when recruiting staff		■			1	Recommendation
Digital capabilities are a priority for the CEO			■		2	Quick win
There are multidisciplinar teams for every plan with their own metrics	■				0	Recommendation
Digital transformation is planned from the top levels of the organisation		■			1	Recommendation
There is a culture focused on innovation and collaboration			■		2	Quick win
Digital capabilities are fully integrated		■			1	Recommendation
Value creation comes from both digital capabilities improvement and continual business model evolution		■			1	Recommendation
Teams and flexible and versatile			■		2	Quick win
Talent is understood as an asset			■		2	Quick win
Flexibility to confront changing environments is a feature to be market leaders			■		2	Quick win
There is an IT investment strategically centred		■			1	Recommendation
Business metrics adapt to changes in strategy	■				0	Recommendation
Ability to develop new ideas and integrating them throughout the organization			■		2	Quick win
New ideas are shared among departments		■			1	Recommendation
Marketing is used to attract, engage, inspire and collaborate with customer			■		2	Quick win
When creating value, it is taken into account external platforms and networks		■			1	Recommendation
There is a data strategy		■			1	Recommendation
Data is accessible for all departments	■				0	Recommendation
Innovation is in their DNA			■		2	Quick win
Innovation is part of the core business				■	3	n/a
Competitors are seen as potential partners and hence there is a collaboration with them		■			2	Quick win
New ideas, processes, ventures and ways of thinking are constantly produced		■			2	Quick win

Value proposition & Technology		
There is a process of assessing and analysing emergent technologies before incorporating them	0	Recommendation
Technology evolution is a result of a must in the market	0	Recommendation
Digital solutions are integrated within the business	1	Recommendation
Know different strategies to integrate TIC in their education model	2	Quick win
Know good practices with TIC within the organisation	1	Recommendation
Know possibilities and limitations of TIC in learning	2	Quick win
Make a previous selections of the TIC tools used in class	1	Recommendation
Use TIC to produce learning material	2	Quick win
Use TIC to share learning material	2	Quick win
Design activities where TIC are incorporated	2	Quick win
Solve learning necessity via TIC	3	n/a
Uses TIC to evaluate activities	2	Quick win
Assess teaching performance to improve future lessons	1	Recommendation
Update their knowledge of TIC	1	Recommendation
Take part in projects of educational innovation	1	Recommendation
Coordinate and promote activities among departments based on TIC	0	Recommendation
Offer training lessons for employees based on TIC	2	Quick win
Is part of or promote being part of any external innovation group based on TIC	0	Recommendation
Know and apply legal regulations when using TIC	3	n/a
Uses TIC in administrative procedures	2	Quick win
Capacity to learn how tools and apps are used autonomously	0	Recommendation
Technologies are assesed regarding the value they offer to customers	0	Recommendation
Blockchain is used	0	Recommendation
Virtual reality is used	0	Recommendation
Flipped classroom is used	1	Recommendation
Hybrid learning is used	3	n/a
On-demand offer is used	0	Recommendation
Learn It Yourself is used	1	Recommendation
Specific technological knowledge is integrated (e.g. Coding, AI, automation)	1	Recommendation
Labour market demanding skills are integrated in academic programmes	1	Recommendation
Value proposition is defined by changing customer needs	0	Recommendation
Value proposition is personalized for each target	0	Recommendation
They are focused on the customer rather than the business	2	Quick win
There is a process of product/service testing and constant improvement	2	Quick win
There are processes to personalise the product/service	1	Recommendation
Customer offer is fully integrated	1	Recommendation
Real-time data is embedded with the different distribution channels	0	Recommendation
External visibility is delivered for student works	2	Quick win
TOTAL RATE	**131**	

Source: Compiled by the author

Regarding Digital Maturity phases, TecnoCampus Digital Maturity rate is 131, which implies that it is in the early stage of the Digital Maturity path. Regarding customer experience, TecnoCampus has already teams focused on data analysis and media investment. Furthermore, it might be in the process of having a team focused on web/mobile development and having data integrated with distribution channels. Moreover, technology is used in operative tasks but not fully exploited and neither integrated. Organisation as a unit recognises the importance of becoming digital and adopting a DT process. Lastly, in regard to value proposition there is not a customer relationship point of view since the great majority of the activities are product-centric. To consult the detailed rating from the assessment, see Annex 1.11.

The dimension selected to be developed in the action plan is Customer & Data. Firstly, it has been considered that TecnoCampus had already identified the importance of the other two dimensions in the plan presented three years ago and, as a result, the following projects developed have been related to the improvement of both the organization management and the value proposition. Secondly, data is an essential asset within the organization as it can be appreciated in previous sections. Opting for this dimension will

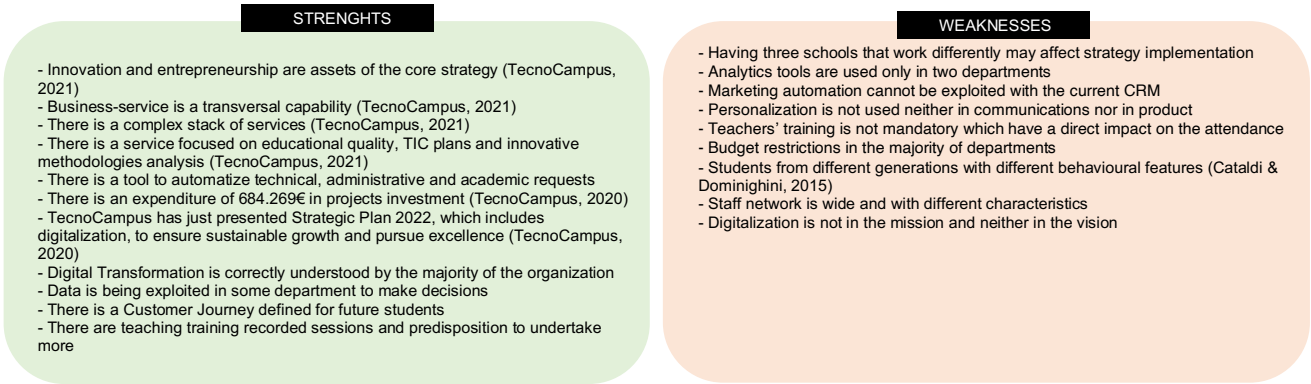
result in different advantages for the organization. On the one hand, it will educate the organization on the importance and usefulness of data, its value and the wide spectrum of possibilities that it offers. Inn Consulting aims to help TecnoCampus by opening the portfolio of activities that can be undertaken to gather and use data. On the other hand, the actions proposed will result in a large amount of data that is going to help and optimize the decision-making process within the organization and, furthermore, creating a value proposition that respond to real customer demand.

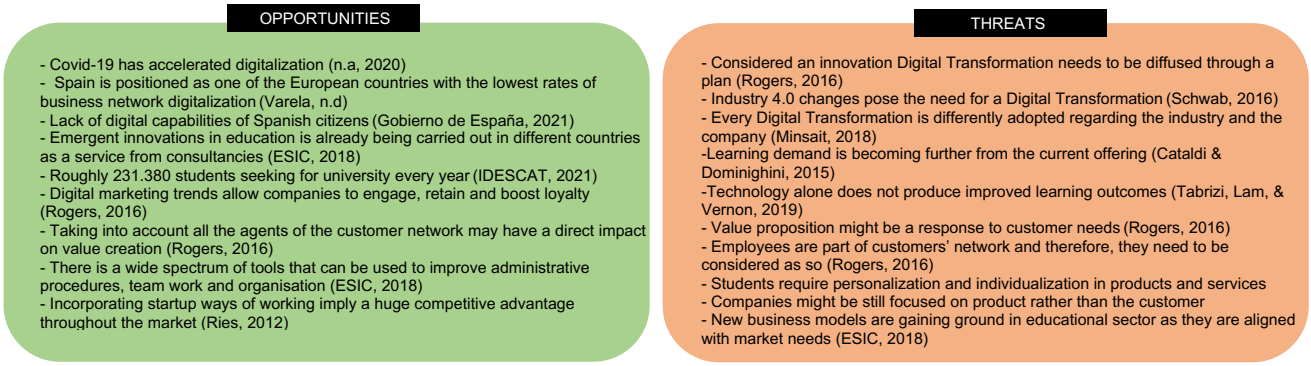
4.4. SWOT

A SWOT framework has been created in Fig. 2. Regarding the dimension identified, it can be identified different strengths and weaknesses crucial to undertake the action plan.

TecnoCampus have different online and offline channels to reach students. Moreover, there are activities created to gather data such as quarterly and annually surveys, PIE requests which are analysed in terms of topics to be reported in every department. And, finally, there is a planned activity and strategy to capture future students form different channels. Nonetheless, in terms of weaknesses, degree students and alumni are not part of the marketing strategy in the same line as future students. There is acknowledged a lack of participation in campus activities and in surveys complementation. This might be a linked with a low effectiveness of the channels, as acknowledged by different departments. In addition, both on-site and online activities are not tracked in terms of data from the attendances that can be used in the future. Finally, there might be an important amount of data which is not being exploited. This situation implies discrepancies among departments in terms of data reporting and information sharing, which pose the need of having a centralized data platform.

Figure 2. SWOT analysis





Source: Compiled by the author

5. Action plan

From the statements identified in the Customer & Data dimension, Table 2 presents the quick wins proposed in order to be improved or start to work on them. Grey statements correspond to the pain point identified within the internal analysis, which identify the gap detected through the internal analysis.

Table 2

Action plan for Customer & Data dimension

Action 01. Create a two sessions workshop among the SQAI departments, university services and marketing team	
Detail	In order to assess online and offline students' behaviour and employee's behaviour in terms of data that can be gathered and data that is already in the data base. Moreover, it might be important to pinpoint those gaps in terms of data that are in the data base in order to focus the first actions to fulfil them. This action would be crucial for the later definition of student's profiles, establish a segmentation strategy and nurture database information. The data that might be considered is the one from annual and quarterly surveys, participation in social activities, participation in professional careers activities, data from requests done to PIE, data from support requests, participation in internal trainings, among others.
Pain point identified	Data from degree student's is only gathered through quarterly and annually surveys. The lack of responses in the surveys imply making them useless when it comes to make decisions and, therefore, take students needs and concerns into account.

Action 02. Create an online contest to increase online engagement and collect data from current and future students

Detail	The contest may raffle an attractive pack for both of the target groups. For instance, three packs that will include bar discounts and a menu. Data required to participate, as its relevance for the marketing department, will be name, surname, degree, year, email, phone number and activities preferences within the university. The action will also require the customer consent, which will imply that data can be used by TecnoCampus in future actions.
Pain point identified	There might be reported a lack of participation is online and offline social, academical and professional activities. Moreover, data from future students is only being collected in the data base with a sales objective and with the basic information. Finally, there is no data gathered when it comes to degree students.

Action 03. Develop a campaign to gather data from Alumni

Definition	It is a first step to take advantage of this target market. Despite no longer studying in TecnoCampus, they might be a crucial element regarding different aspects. They can assess their experience at the university after several years in the labour market, they can be testimonies or a point of support for current and future students, they can also be a source of job offering and moreover, attendees to university institutional events. Additionally, data gathered can be used for the future creation of an Alumni program. The action will also require the customer consent, which will imply that data can be used by TecnoCampus in future actions. Data gathered might be name, surname, degree studied, year when the degree was finished, email, phone number, company where is currently working and position.
Pain point identified	There might be a resource specifically allocated to work on the Alumni target. Nevertheless, there is a huge amount of work to do since Alumni data has not been tracked during previous years.

Action 04. Create student's profiles in regard to the different target groups the university has (filtered by school, degree and year)

Definition	As it has been observed in the marketing department interview, this activity is already undertaken in the case of future students but the department reports to not have enough information to complete them. That is why, this action aims to organize all the data collected from the other actions of the plan and the data that is currently available within the organization in order to create the profiles that will help marketing and promotion departments to address more effectively their actions.
Pain point identified	This activity is 50% advanced for future students and not started to exploit for other target groups, however, is reported to be incredibly useful for the marketing department.

Action 05. Migrate the current customer relationship platform to a marketing automation solution	
Detail	With the aim to activate relevant and personalized communications with customers. In order to fulfil this action, it requires a previous revision of the current technological solutions (CRM, helpdesk, Moodle, website, MailChimp, among others) in order to detect gaps in terms of data collected to define the integration needed. Secondly, analyse the marketing automation solution in terms of the connections available and needed of the different online and offline channels.
Pain point identified	This action is part of the marketing department scope; however, it needs to be prioritised in order to activate the rest of the actions.

Action 06. Ingest the data to the marketing automation solution	
Detail	Once having collected all the data from actions 01, 02 and 03, it is important to take into account not only information about student's but also employees since they are part of customers too. Hence, data gathered from professors training can also be added in order to nurture professors' information.
Pain point identified	This activity is key to respond to an overall pain point reported in the majority of departments, lacking a centralised platform to check data in real time and use this data to make decisions.

Action 07. Develop a Proof of Concept to assess communication via app	
Detail	The insights gathered will be useful for the evaluation of this channel for future conversations between the university and students. When asking for the app, marketing department acknowledged that it has been an outstanding issue for months.
Pain point identified	TecnoCampus app is acknowledged to be a pending matter when it comes to marketing department objectives. Nonetheless is an activity not planned and thought in a traditional approach.

Action 08. Start using Paid Media for all the target groups	
Detail	In order to promote events, activities and programs as a testing process for future application of this marketing technique in the promotion of university activities. The technique can be used in order to promote Action 02 and Action 03.
Pain point identified	Being a tool shown to perform effectively, Paid Media is currently only being used to capture future students and following the same marketing technique it can be broaden to all the target groups.

Action 09. Explore three new different channels (push notifications, app notifications and SMS notifications)

Detail	Once again as a testing process for future application of this marketing technique, it can be used in order to promote activities and communicate relevant messages to students for the academic year 2021-22. This action is going to take place once the marketing automation tool will be integrated.
Pain point identified	There might be reported a lack of participation is online and offline social, academical and professional activities. Channels currently used are reported not to be effective.

Action 10. Unify student's email communications in a unique department

Detail	The aim is to deliver meaningful and relevant messages filtered by audiences avoiding emailing lists that are not properly targeted. The aim of this action is to not only unify the communications established with the customer but also unify the results and reporting done to these communications. As a consequence, the department in charge of this action, which is recommended to be the marketing department, will be able to analyse future actions with all the communication centralised and make significant decisions with an organizational scope. Another advantage of centralising the communications is to start a process of emailing personalisation, where students are provided with relevant messages that are of interest to them.
Pain point identified	From the different types of newsletter that students receive, there might be some that are not accurately targeted which implies that students receive information that is not relevant or useful to them, a phenomenon that downsized their customer experience.

Source: Compiled by the author

5.1. Resources and budget

Fig. 3 shows the summary of the budget, with the detail of every resource needed in every action. The complete budget of the project has been displayed in Annex 1.13. Costs has been classified by resources according to its nature.

Human resources correspond to the costs of the team that is going to lead the project and TecnoCampus professionals that are going to actively participate in it. In the complete budget these costs have been calculated according to the hours that they are going to dedicate to the project. Regarding Marketing department, it has been divided into one technical, who is going to do the actions that require and strategic point of view, and the official, who is going to be focused on operative tasks.

In terms of financial resources, there might be identified four components. Landing pages are going to be created with MailChimp, which implies a zero cost for the project since the tool is already being used by the marketing department. Action 09 is going to be configured with the new marketing automation tool, that is why the cost is contemplated

in the overall cost of the tool. The Marketing Automation solution is annually billed and the cost has been obtained from the supplier that the marketing department is already analysing. Finally, it has been allocated a total amount of 40.000€ to assess the new marketing channels and conduct the Paid Media campaign.

Ultimately, intangible resources correspond to all those elements necessary to develop this project that do not imply any monetary cost but require the time to deliver all this accesses. In a nutshell, the total amount of budget required to develop this project of intervention is 463.061,98€.

Figure 3. Resources and budget of the project

Budget	HUMAN RESOURCES		FINANCIAL RESOURCES		INTANGIBLE RESOURCES		
	Element	Cost	Element	Cost	Element	Cost	
ALL	Inn Consulting Digital Education Analyst	148.448 €			•Access to TecnoCampus data: surveys, activities attendees (both social and professional), PIE requests history, Helpdesk requests history and attendees of internal trainings •Access to Instagram and Facebook account •Acces to Customer Relationship Platform •Access to MailChimp, Helpdesk data, Moodle, Google Analytics, Google DatsStudio and Google Tag Manager •Acces to TecnoCampus app and General Secretary's emailing tool	0,00 €	
	Inn Consulting Digital Education Consultant	74.667 €					
	Inn Consulting Project Manager	26.255 €					
Action 01. Workshops	SQAI department	31.246€					
	Communication & Marketing department (Technical)	1.963€					
	University services (PIE, Library-CRAI, Alumni, promotion department and university life department)	3.365€					
Action 02. Online constest for current and future students	Communication & Marketing department (Official)	1.841€	Landing pages creation and set up	0,00 €			
Action 03. Alumni Campaign	Communication & Marketing department (Official)	1.841€	Landing pages creation and set up	0,00 €			
	University services (PIE, Library-CRAI, Alumni, promotion department and university life department)	3.365€					
Action 04. Student's profiles creation	Communication & Marketing department (Technical)	1.963€					
	University services (PIE, Library-CRAI, Alumni, promotion department and university life department)	3.365€					
Action 05. CRM migration	Communication & Marketing department (Technical)	1.962,86 €					
	Communication & Marketing department (Official)	1.841,14 €	Marketing Automation Solution	37.500,00 €			
	SIT (IT department)	2.158,11 €					
Action 06. Data ingestion	Communication & Marketing department (Technical)	1.962,86 €					
	Communication & Marketing department (Official)	1.841,14 €					
Action 07. PoC communications app	Communication & Marketing department (Technical)	1.962,86 €					
	Communication & Marketing department (Official)	1.841,14 €					
	SIT (IT department)	2.158,11 €					
Action 08. Paid Media advertisment	Communication & Marketing department (Official)	1.841,14 €	Paid Media campaign	40.000,00 €			
Action 09. New marketing channels	Communication & Marketing department (Technical)	1.962,86 €	Push notifications, app notifications and SMS notifications campaign	40.000,00 €			
	Communication & Marketing department (Official)	1.841,14 €					
	SIT (IT department)	2.158,11 €					
Action 10. Email Communications	Communication & Marketing department (Official)	1.841,14 €					
	General Secretary	21.871,85 €					
TOTALS		345.562 €		117.500,00 €		0,00 €	463.061,99 €

Source: Compiled by the author.

5.2. Roadmap

Action 01 is going to be conducted in two different months and before the beginning of the rest of the actions. Action 02 and 03 are planned to be carried out simultaneously from November to January. At the same time, Paid Media campaign is going to be conducted since it will promote both actions. Once data from Actions 01, 02 and 03 has been collected, student's profiles are going to be created in a period of one month. The CRM migration (Action 05) is planned to be conducted during three months in order to ingest all the data during summer where students are not at the university and, therefore, the is less activities to be done. Action 07 and Action 09, are going to be developed in academic year 2022-23 since the university needs to have the Marketing Automation tool properly installed. Finally, regarding Action 10 easiness to be developed it will take place during the whole 2021-22 academic year and the beginning of the following. Fig. 4 displays how actions proposed are going to be distributed throughout this year and the next.

Figure 4. Roadmap of the project

Source: Compiled by the author.

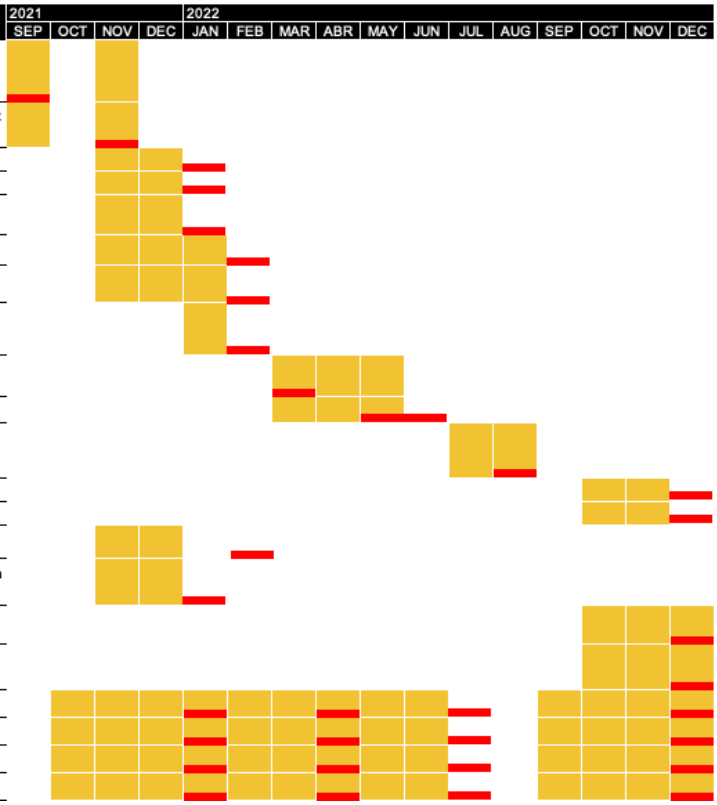
6. Conclusions

6.1. Key Performance Indicators and balance point

According to the information gathered from the interviews (see Table 1), Fig. 5 displays the key performance indicators to assess individually every action proposed within this project, they have been allocated in the timing (red line) in order to determine the exact period where the performance of each action is going to be assessed.

Figure 5. Key Performance Indicators of the project

Action	KPIs
Action 01. Workshops	amount of data gathered from quarterly and annual surveys, social activities participation and professional careers participation
	amount of data gathered from requests done to PIE, support requests and internal trainings
Action 02. Online constest for current and future students	nº of future students leads obtained
	nº of degree students leads obtained
	amount of new data gathered from students currently on the database
Action 03. Alumni Campaign	nº of Alumni leads obtained
	amount of new data gathered from Alumni currently on the database
Action 04. Student's profiles creation	nº of profiles obtained for each school and degree
Action 05. CRM migration	amount of data identified as a gap in the current tools ecosystem
	nº of correct validations in production of the tool
Action 06. Data ingestion	amount of data ingested that can be used to activate relevant communications
Action 07. PoC communications app	nº of app notifications opened
	Click Trough Rate
Action 08. Paid Media advertisment	Leads obtained from Paid Media in Action 02 and 03
	Attendees registered in events and activities from Paid Media campaign
Action 09. New marketing channels	Push notifications, App notifications and SMS notifications Click Trough Rate
	Push notifications, App notifications and SMS notifications Click Trough Conversion
Action 10. Email Communications	New open rate
	New open rate - Old open rate / old open rate
	New CTR
	New CTR - Old CTR / old CTR



Source: Compiled by the author

The detail of the calculation of the balance point of this project has been displayed in Annex 1.14. Expected income and expenses for 2022 has been calculated with the 2020 results as a reference point. Considering the total cost of this project, the gross margin is going to be negative the first year (-81.764,98€). Nevertheless, it has been calculated the profit-and-loss structure for 2022 and there is a financial excess of 656.723,02€ after Interest, Taxes, Depreciation and Amortisation. As it can be observed in Fig. 6, the investment done for the project is going to be recovered in Year 5 if there is an expected growth of 5%.

Figure 6. Profit-and-loss structure five years projection

	Year 1 (with no project)	Year 1 (with the project)	Year 2	Year 3	Year 4	Year 5	
Income	22.708.227,00€	22.708.227,00€	23.843.638,35€	25.035.820,27€	26.287.611,28€	27.601.991,84€	
Expenses	22.326.930,00€	22.326.930,00€	23.443.276,50€	24.615.440,33€	25.846.212,34€	27.138.522,96€	
Gross margin	381.297,00€	381.297,00€	400.361,85€	420.379,94€	441.398,94€	463.468,89€	
Financial result	-28.441€	-28.441€	-29.863€	-31.356€	-32.924€	-34.570€	
Capital grant	75.000€	75.000€	78.750€	82.688€	86.822€	91.163€	
Loan	1.500.000€	1.500.000€	1.575.000€	1.653.750€	1.736.438€	1.823.259€	
Loan amortisation	-319.875€	-319.875€	-335.869€	-352.662€	-370.295€	-388.810€	
Investments	-684.269€	-684.269€	-486.215€	-510.526€	-536.052€	-562.855€	
Digital Transformation	-	-463.061,98€					
Financing excess/need	923.712,00€	460.650,03€	1.202.164,98€	1.262.273,23€	1.325.386,89€	1.391.656,23€	
Council contribution	196.073€	196.073€	205.877€	216.170€	226.979€	238.328€	
Financing excess/need	1.119.785,00€	656.723,03€	1.408.041,63€	1.478.443,71€	1.552.365,89€	1.629.984,19€	
Organic growth			288.256,63€	70.402,08€	73.922,19€	77.618,29€	510.199,19€

Source: Compiled by the author from (TecnoCampus, 2020).

This project is conceived to have an impact on the overall performance of TecnoCampus. In the short term, it will imply a benefit for the organization internally. The university will spread the knowledge of their different target markets thanks to the data gathered from each of them, which will improve the basis for decision-making from a holistic point of view.

Furthermore, the marketing automation tool is going to have a direct impact on the cost of current marketing activities since there will be a lot of actions automatically developed. In light with this automation and with the right knowledge of each and every target group, communications will be more accurate and targeted to the audience that is going to be truly interested on the activity or event promoted.

Finally, the new channels tested within the project are going to have an impact on the effectiveness of the interactions with the customer since they have been chosen according to their behavioural patterns and real usage of technologies.

6.2. Recommendations

Through an assessment of the current situation of TecnoCampus in terms of Digital Maturity, this project has been conceived as the lever to accelerate the path towards DT. To achieve a fully Digital Transformation approach it is important to keep working on the three dimensions identified. In terms of Customer & Data, once data has been integrated in the database and nurtured, the university can start using it by activating meaningful communications to both students and the workforce. In the mid-term, it needs to be taken into account that customer behaviour changes at a high speed and regarding the complexity of TecnoCampus target groups, there might be a constant update on the data that is on the database, since customer is always creating useful data. In the long term, the view that the organisation may well adopt is based on a data strategy with the aim to use data as an asset of the decision-making process. To achieve that, there are different tools within the market used to enhance company's data.

Data Management Platforms (DMP) compile all the data from the organization in a single platform where onmi-channel experiences can be delivered to the customer segmented by audiences created through ML (Boada, 2021). Another tool to be implemented is Students Information System that manages all data embedded from students (UOC, 2021). Wisely implemented technology allows organizations to deliver products and services aligned with real demand. As an example, The Alchemy System is a platform that gives students instant information about their activities, attendance, scheduled events, etc. (Brown, et al., 2020).

Regarding Operative model & Organization, data requires the right structure, people and mindset to be properly exploited and make the most out of it. Introducing digital capabilities as a common goal throughout the organization, will provide employees with the right tools to exploit their digital potential and turn TecnoCampus into a data-driven organization. Start to work on data flows as a result of the actions proposed within this project, making all the departments part of the value creation and boost collaboration, innovation and proactive attitude both from an internal and an external point of view.

In the long run, DT might be adopted as an internal project and with a holistic view, where teams will be dedicated large part of their working day to promote and propose projects 100% integrated in what DT is concerned. This future perspective, will result in the need

to have dedicated teams to analytics, customer experience, customer insights and web/mobile development. In terms of data, departments may well be completely aligned with internal standards regarding reporting, metrics assessed and processes, which is crucial to facilitate and optimize the operative model and improve productivity.

Value proposition & Technology dimension is focused on how actions developed on customer, data, operative model and organization can be translated to an improved and empowered value proposition. TIC is arguably a key element to be integrated to the learning path. As it has been observed through this project, market practices in the education sector need to be taken into account and constantly assessed as a prospect to be integrated in the offering. Not only in the way learning is delivered but also in terms of the tools offered to students to develop their task.

Education sector practices need to be taken into account and constantly assessed as a prospect to be integrated in the offering, responding to how labour market works and which skills are demanded. Owning the right structures and platforms with all the data properly integrated will imply having real-time data from students and, as a result, be able to give students real-time feedback of their academical progress. An element key to detect in advance when a student might be failing or not attending to class, and take the proper actions to help them.

Another element to be considered regarding value proposition might be boosting external collaboration. This will help the university to grow in terms of entrepreneurship and student's recognition, crucial elements to leverage TecnoCampus' feel of university membership. In the long term, it would be recommended to assign the right teams to evaluate the technologies already used and determine what can be improved yearly or changed. Untimely, introduce more sophisticated technologies that will take TecnoCampus to the next level: Blockchain, Virtual reality or AI, as an example. And, finally, moving to personalization as a way to create an individualized offering to each and every student; a practice that is already being tested with small scale projects but is acknowledged to be the future of education.

In a nutshell, organizations might need to understand these changing tendencies as a new mindset in which adaptability is crucial to survive within the market. Ever changing customer behaviours need to be taken into account regarding the improvement of the

current offering and the continual evolution of the product or service portfolio. Furthermore, emergent technologies may well be incorporated to the company and integrated with the operating model, product or service and online and offline channels (PwC, 2020). As it can be seen form the revision of the literature, such practices are not considered to be developed independently. That is why, there needs to be undertaken an ongoing project to be implemented and continually revised and adjusted to external needs, acknowledged as Digital Transformation.

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