<a>ENTREPRENEURSHIP AND INNOVATION IN TOURISM: EXAMINING IMMERSIVE TECHNOLOGIES, VIRTUAL REALITY, AND AUGMENTED REALITY

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<b>Abstract

Entrepreneurship has been analysed from different approaches to understand the process of creating a company and its growth. Increased use of information and communication technologies (ICTs) has encouraged new entrepreneurs to adapt their *modus operandi* to the new technological environment and search for new opportunities in this context, using the opportunities provided by the new technological resources to achieve company success. Accordingly, the notions of entrepreneur and entrepreneurial organizations have evolved. The present chapter describes the evolution of these concepts and the potential of this field of study in the tourism sector. A case study methodology was adopted to understand the elements involved in the entrepreneurship cycle. One case study is elaborated on, depicting the firm Sebka Technology, which applies disruptive technologies such as virtual reality (VR) and augmented reality (AR) to the tourism sector. From the interview data, we developed a model that explains the entrepreneurship cycle, namely the main motivations to decide to create an organization and identifies the factors that favour the creation of the company and the drivers for the company growth. The information obtained from this study sheds light on future research avenues in entrepreneurship and innovation in the tourism sector.

Keywords: Entrepreneurship; Entrepreneurs; Innovation; Technology; Virtual Reality; Augmented Reality

Introduction

VR and AR have become two of the most promising technological sectors with numerous applications in all industries (Marr, 2020). In 2022, the spending on AR/VR is forecast to reach $13.8 billion, and $50.9 billion for 2026. Due to the progress of hardware and software, it has also been estimated that there will be an increase in the use of AR and VR applications, with spending on those technologies likely to maintain steady growth, registering a five-year

compound annual growth rate of 32.3% (International Data Corporation [IDC], 2022).

More and more companies are joining the VR/AR market. In their eagerness to offer new immersive realities to the business and consumer markets, many established companies in other areas are expanding their collaborations with suppliers of hardware and software, enriching their catalogues to meet the demand of companies and consumers (Yim and Chu, 2012). These technologies are currently being developed in a variety of forms: mobile, head-mounted display, glasses, and devices. AR and VR forms can be applied in different contexts, depending on the firm's goals (Poushneh, 2018). Moreover, within organizations, innovative digital entrepreneurs can take advantage, leveraging AR and VR to craft immersive brand experiences, create more interactive advertising, and enabling consumers to experience products and spaces in novel ways (Scholz and Smith, 2016; Poushneh and Vasquez-Parraga, 2017). Digital entrepreneurs can create a unique and valuable experience for consumers by effectively leveraging AR (Scholz and Duffy, 2018). However, while VR and AR can play a valuable role in integrated marketing programmes, little is known about the practice and how to execute effective VR and AR programmes in the marketplace by entrepreneur organizations (Scholz and Smith, 2016).

The extension of the use of AR and VR to reach a wide audience, for example families, seniors, and those with a temporary or permanent disability, is essential for companies to remain competitive in a market that is increasing in scale and competition. That collective effort contributes to achieving a universal, sustainable, and accessible tourism industry. Content development tools are expanding, providing greater AR/VR integration, more flexibility, and new opportunities for developers. These factors combine to strengthen the AR/VR offerings for consumers and businesses (IT Reseller Tech&Consulting, 2019).

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Comentado [AD2R1]: Ok

Despite the initial enthusiasm and significant potential of VR and AR technologies, reports from CCS Insight (2019) and IT Reseller Tech&Consulting (2019) state that much work remains to be done to improve the user experience, software platforms, and content availability especially in the tourism sector. It is not common to find VR and AR immersive applications either in tourism destinations or the hospitality sector (Rippa and Secundo, 2019). Moreover, entrepreneurs are not fully aware of the rapid developments of these technologies and, therefore, appear to be not trained well enough to adopt and adapt the existing technologies to their environment (Guttentag, 2010). Additionally, there is little understanding of how tourism entrepreneurs effectively market tourism destinations to virtual

world participants who are new technology users.

The sector related to VR and AR technologies is growing exponentially. The potential of this market is and will be enormous in the short and medium term, because the opportunities are global. Accordingly, the aim of this chapter is to explore the implications of this phenomenon on tourism entrepreneurship. For a more in-depth exploration of this topic, a case study method was chosen. The firm Sebka Technology was selected since it has a strong entrepreneurial approach to the potential offered by AR and VR for tourism ecosystem destinations. The firm designs guided tourist routes that allow tourists to see the historical heritage of a city using the Sebka Technology device composed of AR and VR technologies. The tourist products offered by the firm allow visitors to approach heritage spaces in a close and immersive way. The case highlights the entrepreneurial process, the stakeholder's involvement strategy, and the evolution of capability deployment over time, providing valuable insights into technological tourism entrepreneurship.

From a Classic Entrepreneur Approach to Contemporary Digital Entrepreneurship

Although there are many environmental factors that have driven changes in the last decade in the economy, business, and society, the explosion of ICTs is widely considered the most significant. Today, ICTs and their applications are demanded by a high percentage of people around the world and are found in nearly every field of life. The huge influence of new technologies, particularly the internet, has led to not only to changes in the manner of doing business but also to the consumers' requirements or needs. Society is undergoing a radical transformation in many aspects of daily life, such as learning, communication, shopping, business, etc. (Bastos, Sánchez-Cantón and Costas, 2012). The market is changing at a frantic speed and the opportunities are not the same as before so, consequently, entrepreneurs must change accordingly.

New entrepreneurs must adapt their *modus operandi* to the new technological environment and search for new opportunities in this new social context, using, among other things, the opportunities provided by the new technological resources to achieve success. Accordingly, notions about entrepreneur and entrepreneurial organizations have evolved. This evolutionary conceptualization of these significant entrepreneurial issues has been guided by well-known and reputed works. The universal notions of entrepreneur and entrepreneurship were first established by theorists and practitioners according to Schumpeter's (1934) approach. In his first work Schumpeter defined entrepreneurs as those 'individuals who exploit market

opportunity through technical and/or organizational innovation,' thereby anchoring the notion of the entrepreneur in terms of specific characteristics and in the entrepreneurship process based on innovation. Rooted in Schumpeter's (1934) approach, later, Drucker (1985) argued that entrepreneurs are individuals characterized by a continuous search for and adaptation to new environmental changes to seek new opportunities that allow their organizations to create advantages. Other authors go further and argue that entrepreneurship is a more complicated process than merely innovation (Gartner, 1988). Hence, entrepreneurship is recognized as a multidimensional concept that revolves around various key issues such as risk, uncertainty, innovation, and value creation, highlighting the entrepreneurs' search for and exploitation of new market opportunities through innovation (Van Stel, Carree, and Thurik, 2005).

Research papers have recently emerged to analyze research questions such as the influence of digital technologies on entrepreneurship (Nambisan, 2017). The emergence of new technologies requires a re-conceptualization of the entrepreneur and entrepreneurship, and therefore a new approach to theories of entrepreneurship (Zaheer, Breyer and Dumay, 2019). Thus, the digital infrastructure immersed in digital technology tools and systems (such as online communities, cloud computing, data analytics, 3D printing, etc.,) provides organizations with a fast and reliable way to communicate and collaborate with their market and stakeholders as well as with some computing capabilities (Nambisan, et al., 2017). It enables the entrepreneurial process that led the democratization of entrepreneurship process in the recent decade (Aldrich, 2014). Moreover, today markets are characterized by a mature and extremely competitive that limits the chances of success for traditional entrepreneurs. In this vein, new opportunities emerge for the digital entrepreneur who can achieve benefits from a lower profit threshold due to the lower limitations of the digital business process and its results (Nambisan, 2017; Delacroix and Benoit-Moreau, 2019).

In this new technological context, digital entrepreneurs are usually depicted as young, well-educated, ambitious, and urban opportunity-driven individuals who strive to take advantage of both the influence of social networks and a combination of up-to-date technical and business skills, launching start-ups with the ambition to become the next reputed business individuals (Zaheer et al., 2018). Moreover, both the initiatives of emerging digital entrepreneurs and the research on digital entrepreneurship have ultimately focused on the teams of young and well-trained entrepreneurs, who are oriented to the search for digital opportunities (Nambisan, 2017; Zaheer et al., 2018) against the individual entrepreneur in the traditional approach. The combination of updated technical and commercial skills allows those teams to become

successful by using digital entrepreneurship to create new organizations that lead the market (e.g., AirBnb, Google, Microsoft, Spotify). Accordingly, digital entrepreneurship involves an active choice to exploit an opportunity to start a business and resources to do so (Acs, 2012).

To sum up, in the entrepreneurial literature it is possible to appreciate a shift from the initial entrepreneur notion based on Schumpeter's seminal work and related works, who generally defended the figure of entrepreneur rooted in the common idea of individuals exploiting market opportunities through innovation (Van Stel et al., 2005), towards the "digital entrepreneur" approach. Furthermore, many theorists and practitioners have defended a shift from the traditional mode of creating and doing business leading to the emergence of both the digital entrepreneurs' team, in the digital era, as a new category of entrepreneur, and the new process of entrepreneurship (Muñoz and Cohen, 2018). Accordingly, digital entrepreneurship process is conceptualized as a new form of entrepreneurship where the emphasis is placed on the use and leverage of new digital technologies, especially taking advantage of the widespread use of digital platforms, where producers and consumers participate and that facilitate the exchange of goods and services (Chen, 2018). Therefore, assuming risks related to the search, evaluation and implementation of new opportunities (Autio, Dahlander and Frederiksen, 2013), the current digitalization in companies have made that the new entrepreneurs' actions are complex and collaborative (Ogilvie, 2015) and not an exclusive task from only one individual as noted by the classical entrepreneur theories. Furthermore, this phenomenon must be understood within the specific context of tourism entrepreneurship.

Digital technologies as an innovation source in tourism and hospitality

The rise of ICTs and the rapid acceleration of digital technologies in recent decades, has become a phenomenon that has aroused great interest of many different collectives (companies, society, universities) due mainly to the considerable impact that they have had to social, economic, and entrepreneurial (Greenstein, Lerner, and Stern, 2013). Moreover, as noticed by Abernathy and Clark (1985), this wave of digital technology has enabled the departure from traditional production systems to the opening towards new channels, connections new markets, consumers, and other stakeholders, and, therefore are reshaping the markets and society globally (Nambisan et al., 2017). Many institutions, companies, their stakeholders, and the whole society have been forced to make deep changes both in their way of being and of doing or acting following the irruption of digital technologies. Thus, it is precisely in this situation where the new digital entrepreneurship has taken advantage of these changes, the new needs, and requirements that they entail, to start the seeking of new business

digital opportunities to achieve the business objectives successfully. In this new business context, digital technologies are opening fascinating innovation opportunities for entrepreneurs (Cohen, Amorós, and Lundyd, 2017), and could become a key and dominant innovation source in the achievement of entrepreneurship, mainly, the new digital entrepreneur and the digital entrepreneurship process that they address.

<c>Virtual Reality in Tourism Sector

Rooted in previous arguments and the current state of the art in tourism, a key question is emerging from practitioners and theorists: Why is VR increasingly being an important issue in the Hospitality Industry and in other agents belonging to the Tourism sector and hence it is acquiring a significant value in this context? In the academic literature appear many reasons to answer these questions. The business world is increasingly getting to grips with VR's potential not only as an entertainment tool but also as a marketing tool, delivering important information to potential customers and stimulating multiple senses in the process. Consequently, VR is one of the relevant emerging technologies and therefore business world is gradually taking advantage of the opportunities it provides.

Virtual reality (VR) is defined as "the use of a computer-generated 3D environment – called a virtual environment (VE) – that one can navigate and possibly interact with, resulting in real-time simulation of one or more of the users five senses" (Guttentag 2010, p.638). The key characteristic of VR is that the users enter an entirely immersive world fabricated by the computer system, without seeing the real world around them (Cawood and Fiala, 2007) generating experiences in a virtual environment (Aziz and Siang, 2014). Although VR notion exists since the 1930s, however, its knowledge, demanded and proliferation inside the consumer market has not occurred until more recent times motivated mainly by the increased investment of the high-quality consumer product-related such as VR headsets from companies like Google, Facebook, and Samsung.

Immersive Virtual reality (IVR) extends this feature adding more value, utility, and advantages to tourism experiences. Furthermore, many claim that IVR offers many useful applications to business, firms, tourism sector, and the whole society. Focusing on the tourism industry, it has been recognized that information and communication technologies allow entrepreneurs to respond to growing consumer demands (Buhalis and Law, 2008). Accordingly, from a demand and supply perspective, internet and social media has turned to be an effective tool to collect insights and make reservations (Grønflaten, 2009) before

visiting the destination (Buhalis and Law, 2008).

Many uses of VR can be identified as new tool designed and employed by Digital Entrepreneurs as a keyway within the Digital Entrepreneurship to take advantage in the new business environment. This issue has been expanding from the traditional business sector related to mainly marketing entrepreneurial to new business horizons like the tourism sector and its different agents and products. Accordingly, Carrozzino and Bergamasco (2010) VR can be applied to cultural experiences especially cultural heritage applications. They provide a tool based on widely valued aspects of these technologies framed in virtual reality systems mainly, interaction, immersion, usability, quality of sensory experience, as well as highlighting potential advantages achieved by using VR technologies such as the perceived value and the "fast" usability of these VR systems. The authors also highlight two successful outcomes from VR applications: (1) The measure of the sense of presence (usually one of the most important objectives in a virtual experience); and (2) the way to involve the users (in the context of the exhibition it is important to immediately involve the users), which allows them to interact with fast learning curves and in the most natural way.

Other researchers have upheld the application of VR for preservation and promotion of cultural heritage (Bruno, et al., 2010), but their success is influenced by the tourist perception of authenticity and motivations (Guttentag, 2010). Thus, VR technologies appear to be more interesting and appealing technologies than 2D multimedia presentations especially in ancient heritage attractions (Gutierrez, et al. 2007).

In the Hospitality industry**,** the importance of VR is also highlighted especially by delivering pre-booking information, offering customers a glimpse of the hotels facilities and services. VR can also be applied after the reservation. The hotel can also use VR to provide additional information about local attractions (Mauri and Minazzi, 2013) like virtual tours than can be offered on the hotel websites. Despite the recognised value of VR in tourism sector, it is still scarce to find out VR immersive applications both in tourism destination sites and tourist agents´ installations (museums, hotels, restaurants…) (Rippa and Secundo, (2019).

Augmented reality in Tourism

Technological evolution also allowed the AR potentialities. Allowing to respond to a growing request for more interactive experiences (Johnson, 2012). Moreover, recently, the potential of AR has been the object of significant attention, since it provides novel approaches to virtual

environment (Jung et al. 2015). Over the years, many definitions have been developed concerning AR. Lu and Smith (2007) argued that AR such an enriched product information, and, as Kim and Forsythe (2008) point out, to provide a multi-dimensional view of tourism products. As such, AR combines real context with VR in real time (Cawood and Fiala, 2007).

Many arguments are provided in the academic literature defending both the justification and value of the employment of new technologies such as AR. Kim and Forsythe (2008) and Daim et al. (2012) argue that AR offers the tourists a more independent decision-making, and Poushneh (2018) posit that AR can generate more appealing experiences. Due to technological evolution, it is expected a development of the capabilities of the applications of AR. As predicted by Garner (1988) approximately one third of workers will use some sort of AR capability. On the other hand, the promotion of AR in the commercial market is also promising.

Tourism sector has been adopting AR in a fast pace. The technology-augmented reality appears to be an excellent opportunity for an entrepreneur to innovate in tourism and hospitality sector. The capability to superimpose images enables historical buildings to be brought back to life through re-enactments of old events and explanations of their meaning (Gervautz and Schmalstieg, 2012). AR Mobile Apps are useful technologies for Cultural Heritage Communication being presented by Casella and Coelho (2013), as another tool in the broader context of Heritage Interpretation.

AR applications help tourists gain a deeper understanding of the origins of geological heritage (Martínez-Grana, Goy, and Cimarra, 2013). Focusing on the value of AR to Cultural Heritage sites, Cranmer and Jung (2014) manifested that AR is able to create new value at Cultural Heritage sites agreeing with Fritz et al., (2005), Kounavis, Kasimati and Zamani (2012), among others, because visitors can explore the unfamiliar surroundings in an enjoyable and thrilling way, as well as providing unique and memorable experiences (Yovcheva et al., 2013). Furthermore, these technologies allow to enhance the between the cultural heritage experience and the visitor (Han et al. 2014). This indicates an experience co-creation, i.e., user and provider jointly create a valued outcome (Neuhofer, 2016).

Casella and Coelho (2013) also highlighted the importance of AR in educating museum visitors by providing value added application. The impact of these applications is also relatioed to the growing user friendliness and efficiency, which contributes to the generalization of use and visitor acceptance (Han et al., 2014). AR is also considered a crucial

element for experience innovation in other type of attractions like thematic parks (Casella and Coelho, 2013; Martínez-Grana et al., 2013; Weng et al. (2011).

To sum up, entrepreneurs are making effective the clear potential of AR by using AR to create an interactive and enjoyable tourism experience (Moorhouse, et al. 2018) being AR experience especially valuable to the tourism industry (tom Dieck and Jung, 2017). Jung et al., (2015) have attributed this AR value to tourism sector due to the creation of unique and memorable experiences. Therefore, a growing usage and acceptance of AR applications has been observed and boosted new entrepreneurial ventures in the tourism industry. Some successful AR applications has been designed for mobile devices (e.g., Time Traveller), while other are more focused on the dynamization of on-site experiences using smart glasses. The next section provides an overview of a case of study representing a realistic and practical response to the trend of wearable.

<b>Sebka Technology, a case study in entrepreneurship and innovation in tourism sector

Sebka Technology is a young company made up of a team of professionals from different sectors: tourism, history, art, communication, design, computing, infographics, engineering, etc. (Figure 1). The Company offer different visions for one goal, the application of new technologies to culture and tourism to make it more innovative, effective, attractive, and interactive and close to everyone. However, Sebka Technology is much more than that. It is a company, which was born from Alminar Servicios Culturales a cultural management and Leisure Company with almost 20 years of operation.

Sebka Technology is the creator of a tourist product named PAST VIEW, unique and pioneering worldwide: guided routes combining smart glasses, AR, and VR through which the user makes a real journey through time. It is also a company in continuous search for innovative and technological solutions, for which it develops an active R&D plan. Thus, Sebka Technology constitutes a clear and current example of entrepreneur and innovation in the tourism sector. Its activity is supported mainly on a continuous innovation and progressively implementation of novel VR and AR technologies in tourism destination. These insights and modus operandi promoting by a young team of entrepreneurs have provided to this company numerous awards, and a great recognition also displayed through dossiers in mass media such as relevant new papers during more than twenty years of performance in the tourism sector with a wide number of partners inside and outside of Spain (Greece, Turkey).

Among others, it can be highlighted the following recognitions from its lunch in 2012 at national, regional, and local scope. In 2013 and concurring with World Tourism Day, the city's Tourism Consortium (Seville) awards PAST VIEW for being the Best Tourist Innovation Initiative. It was also newsworthy the award for the best Entrepreneurial Initiative of Andalusia Region (Business Recognition). In 2014, Sebka Technology received the reward titled Andalusia Excellent Award in the New Technologies category. In July 2015 and at the Andalusian scope, the Joly Group and CaixaBank awarded Sebka Technology for its excellence as Tourism SME. In 2018, the prestigious English magazine Luxury Travel Guide recognizes Sebka Technology with the award for the excellence of travel and tourism companies around the world.

Figure 1. Sebka Technology: Case Study

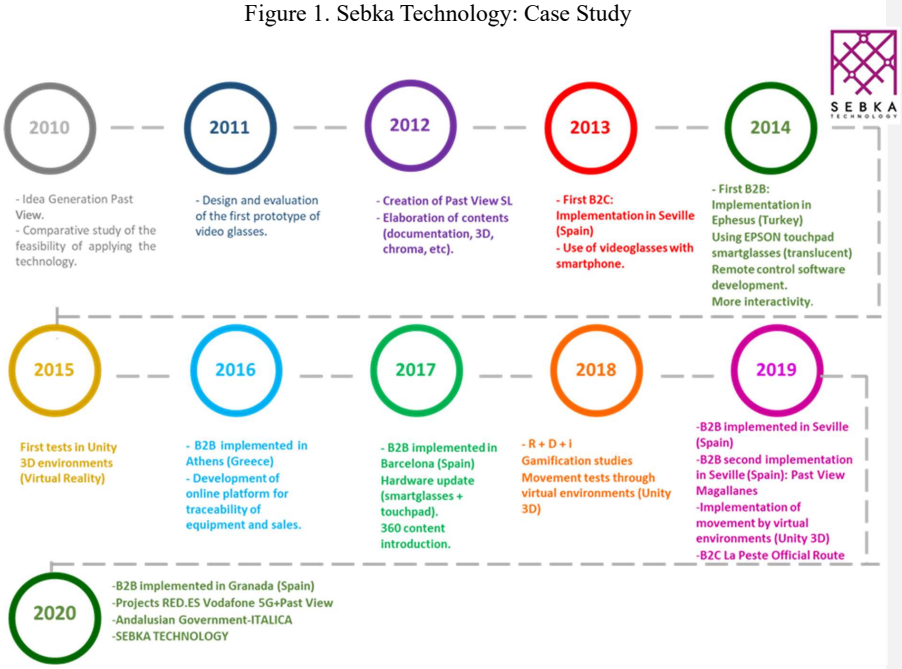

Figure 2. Sebka Technology evolution. Source: Authorized by Sebka Technology

Sebka Technology offers and promoting their products to a vast and diverse number of tourists in a fancy, funny, easy and interactive way with a logical and attractive designed (Figure 3). The PAST VIEW device, made up of smart glasses and a touchpad, allow visitors to delve into the past through virtual reconstructions and AR (Augmented Reality) technology that will allow them to approach heritage spaces in a close and immersive way.

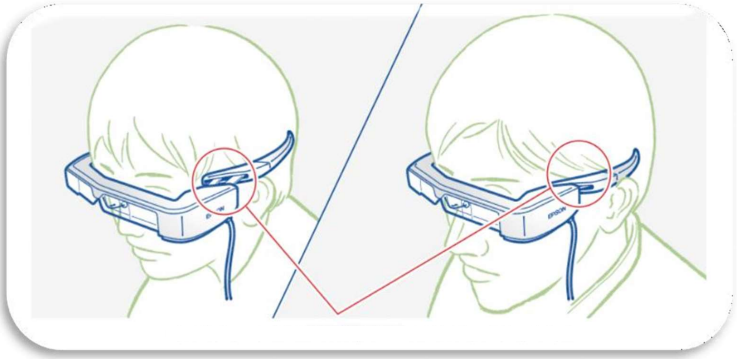

Figure 3. PAST VIEW technological designed. Source: Authorized by Sebka Technology

PAST VIEW offers guided tours that allow the users to see how the spaces that were visited at different times in the past looked like.

Figure 4: PAST VIEW as a sensory experience. Source: Authorized by Sebka Technology

The success of Sebka Technology in entrepreneurship has been analysed through an in-depth

interview conducted to Jorge Robles, who is the founder of the company and a clear example of a successful entrepreneur. From the information collected, useful data related to the creation of the organization and its growth has been found (Figure-5).

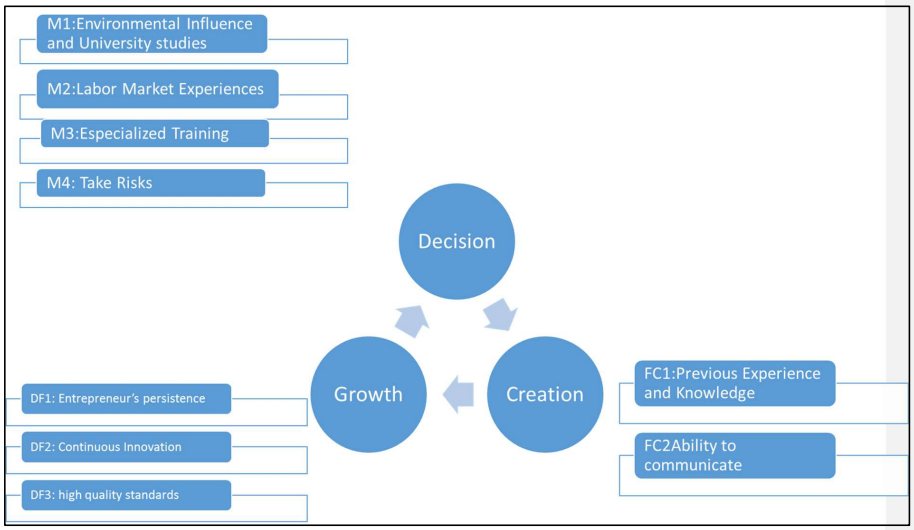

Figure 5. The Entrepreneurial Cycle, based on Barrera Malpica (2011)

The Sebka Technology's entrepreneurship process begins with a series of motivations. An initial motif (M1) was the influence that their environment exerted on the interviewee. The entrepreneur recalled experiences from his childhood that somehow taught him the development of a specific business activity although those experiences did not come from his parents but his uncle's entrepreneur activity. After finishing his bachelor's degree, experiences in the labor market taught him the value of work and unwind autonomously (M2). A relevant motif to be entrepreneur was related to the training acquired after completing the executive MBA (M3) and his personal traits namely his curiosity and intuition to develop professional activities and take risks (M4).

From these *leitmotifs*, the interviewee decided to create an organization. Two fundamental creation factors occur before the attainment of financial and physical resources, and that rather favor the obtaining of these resources. The first creation factor is the application of previous experience and knowledge (CF1). The interviewee had already experience in the creation of the company Alminar-cultural services whose business activity was related to

history and tourism. The entrepreneur thus founded the company in an area that he knew. Furthermore, the knowledge of a specific task as it was developed in Alminar-cultural services, allowed him to develop creative ideas around it. The second factor (CF2) is the communication ability to acquire resources. The interviewee highlighted that the skill to present the project as an interesting alternative to be financed is completely necessary to achieve those resources to fund the business activity. However, the entrepreneur remarks that, at the beginning of the Sebka Technology's activity, most of the finance financial resources did not come from financial indebtedness but rather from their own resources. These two factors lead to the creation of an organization that consists of acquiring physical resources and selecting human talent based adequately on staff's training and mainly staffs attitudes to start operating.

The entrepreneurship process does not end at the time the organization is created. In the growth stage of a company, three driving factors are distinguished for the achievement of such growth:

1. The entrepreneur's persistence (DF1). It is evident from the interview the time devoted and sacrifices that the entrepreneur makes for his commitment to his company. An entrepreneur as Jorge Robles remains at the head of the organization despite the crisis and any internal or external difficulties presented.

2. Continuous Innovation (DF2). The entrepreneur claimed that innovation is forever and accordingly to keep innovating throughout life to stay at the forefront and as a reference. The last innovation applied to PAST VIEW product has been to include gamification. This innovation aims to meet customers' requirements since the users do not want to be passive but to be an active part of the experience. Thus, technology helps users to interact with the environment.

3. Maintain high-quality standards in the product and service offered to customers (DF3). According to the entrepreneur, the main driver of the Sebka Technology's growth is Customer Satisfaction: "Everything has to be done so that the client has the most satisfying, pleasant and interactive experience, so that it means that we have to continually innovate".

With the three growth driving factors, the entrepreneurship cycle begins again, giving rise to new decisions, creations and expanding the organization's vision.

<b>Conclusions

This study has strived to expose the conceptual frameworks and existing theories about tourism entrepreneur and entrepreneurship. An exposition of the evolution of these increasing value entrepreneurial concepts in a world where the application of new technologies is more than evident becomes necessary. To meet this appeal, we have also employed the methodology named “Case Methodology”, that has allowed us for a qualitative analysis of research questions by means: employing of an in-depth interview conducted to a successful entrepreneur in the tourism sector.

The analysis of the creation of the Sebka Technology Company and its antecedents has allowed us to describe the tourism entrepreneurship process by adding value to tourist experiences. From the interview, relevant data of the entrepreneurship process were identified: the main reasons that influenced the decision to create the company (M1, M2, M3 and M4); the factors which appear to be necessary for obtaining financial and human resources for the creation of the company (F1, F2, F3); and the driver factors (DF1, DF2) for the company to grow continuously.

From the results of the present research, we can describe the entrepreneur as an individual who continuously innovates and develops activities for the creation of the growth of the organizations. Likewise, entrepreneurship is the process that allows the company not only to be created but to growth. The entrepreneurship process constitutes a dynamic cycle given rise to new ideas, decisions, creations, and future vision for suitable growth. Furthermore, in words of Sebka Technology’s entrepreneur, Jorge Robles the entrepreneurial process demands from the entrepreneur a growing and continuous process of training, of searching novel and attractive ideas, taking the risk of implementing them, and articulate the mechanism of suitable marketing promotions and selling tasks. Moreover, the entrepreneurial and innovative process should never stop, even after meeting each goal pursued.

From a tourism entrepreneurship perspective, this chapter provides important insights for the development of new ventures. First, the potentiality of VR and AR technologies for the creation of new businesses is transversal to all activities in the hospitality and tourism industry. Second, the case shows that, on the one hand, the availability of technology-intensive business development capabilities is not widely available, which may limit the number of start-ups in this area. On the other hand, this entrepreneur, although having these capabilities, necessarily had to work in a collaborative team and develop partnerships to

launch the venture. In this sense, social capital is essential to the entrepreneurial process, and entrepreneurs lacking technological capabilities can also resort to partners outside the sector who possess this knowledge to develop technological solutions in tourism.

Third, this study highlights the entrepreneurial process in the tourism context and its difficulties and barriers. Firstly, the fact that the tourism product is complex by nature, involving the participation of various entities, some of which are not necessarily tourism-related (e.g., public entities), which increases the difficulties of the process. Furthermore, since tourism is offered as a service, it requires the participation of the visitor himself in the experience, which makes the use of technology challenging. Therefore, the technological evolution requires entrepreneurs to be able to keep up with the growing demands of the markets and, at the same time, offer a solution that is user-friendly to reach a wide range of potential users.

This study also points to several avenues of future research. Firstly, the interaction between partners with different backgrounds, sectors and organisational cultures is a challenge that requires further investigation. Secondly, as seen in the case study, the implementation of the solution and its success requires high resilience on the part of the investor, along with the technical and social skills needed to make it happen. This combination of skills may vary depending on the project and throughout the various phases of its evolution. Little is known about this set of skills and how they evolve over time (Dias et al., 2022), so it could be an interesting topic to explore.

<b>Acknowledgement

We would like to thank Mr. Robles for its appreciable collaboration, providing a great value to the present chapter through his own entrepreneurial experience. Undoubtedly, his knowledge and managerial experiences will help others to face the decision of being an entrepreneur and start the entrepreneurial process.

Comentado [RH3]: Based on comms with Rosa, funding details have been removed

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