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Innovative Business Plan: an all-in-one directory smart tourism travel app for Lisbon-LXplore

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BUSINESS
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Dedication and Acknowledgements

I would like to show my deepest gratitude to my supervisors, Professor Rui Gonçalves and Professor Nuno Abranja, for your guidance and patience, they have given me supports since the beginning of this thesis, motivating me to see this project through to completion.

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Last but not least, I am grateful for the strength and persistence that allowed me to continue in this journey, to have the balance between work and study and even during the most challenging moments.

Amidst the journey, I found not the end, but the beginning of a new chapter.

Resumo

Esta tese apresenta o desenvolvimento da LXplore — uma aplicação inteligente e tudo-em-um para turismo em Lisboa, uma aplicação móvel de diretório digital abrangente destinada para melhorar a experiência turística em Lisboa, ao fornecer uma única plataforma para serviços essenciais e informações turísticas. No panorama contemporâneo de avanços tecnológicos, surgiram inúmeras aplicações móveis de viagem para facilitar e enriquecer as experiências dos viajantes. No entanto, ainda existe uma lacuna notável no mercado no que diz respeito às necessidades consolidadas dos turistas em Lisboa. Esta deficiência dificulta a navegação dos turistas pela cidade. Este estudo procura apresentar um plano de negócio abrangente, demonstrando o seu potencial para preencher a lacuna no setor do turismo de Lisboa, sendo o valor central do LXplore a sua capacidade de direcionar os utilizadores com eficaz para várias aplicações e websites de serviços turísticos numa única plataforma. O plano de negócios foi desenvolvido com uma abordagem de métodos mistos, incluindo inquéritos e entrevistas para obter dados primários sobre as preferências dos utilizadores. Para os dados secundários, foi realizada uma análise de mercado e uma análise SWOT, a fim de identificar as principais oportunidades e desafios para o negócio. Projeções financeiras foram feitas para os primeiros cinco anos, desenvolvidas também visando avaliar a viabilidade financeira do negócio. Os resultados indicam uma crescente procura por soluções de turismo inteligente em Lisboa, confirmando a relevância e o potencial sucesso do LXplore no mercado.

Palavras chave: Aplicação Móvel de Viagens, Turismo Inteligente, Plano de Negócios
Classificação JEL:

M10- Geral

M13 Nova Empresa/Start-Up

Z32 Turismo e Desenvolvimento

Abstract

This thesis presents the development of LXplore — An all-in-one smart tourism travel app for Lisbon, a comprehensive digital directory mobile app designed to enhance the tourism experience in Lisbon by providing a single platform for essential services and tourist information. In the contemporary landscape of technological advancement, numerous mobile travel apps have emerged to facilitate travel and enrich the travel experience. However, there still exists a notable gap in the market that addresses the consolidated needs of tourists in Lisbon. This deficiency hinders tourists' experience to navigating the city smoothly. This study endeavors to present a comprehensive business case, demonstrating its potential to fill the gap in Lisbon's tourism sector, with the core value of LXplore being the convenience that directs users to different tourist service apps and websites within a single platform. The business plan was developed using a mixed-method approach, including surveys and interviews to obtain primary research on user preference, for secondary research, market analysis and a SWOT analysis were conducted to identify key opportunities and challenges for the business. Financial projections for the first five years were also developed to assess the app's potential financial viability. The findings indicate a growing demand for smart tourism solutions in Lisbon, affirming LXplore's relevance and potential success in the market.

Key Words: Travel Mobile Application, Smart Tourism, Business Plan
JEL Classification:
M10- General
M13 New Firm/Start-Up
Z32 Tourism and Development

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1. CHAPTER 1 Introduction

1.1. Contextualization and precedents

In today's era of technological advancement, numerous applications have emerged to facilitate travel and enrich the overall travel experience. However, for tourist, specifically, for non-native Portuguese-speaking tourists, the process of gathering essential information for travelling in Lisbon may imply challenges and time-consuming. The current tourism technology market lacks an information aggregated platform that caters to the specific characteristics of each city.

This research aims to address information accessibility issues by conceptualizing and developing a comprehensive, all-in-one travel application that covers necessary service that might be needed throughout the entire tourist journey. When tourists search for information, they need to obtain from different sources and there is a lack of a platform that offers all the necessary service app to facilitate tourists' travel.

LXplore's functionalities will align with the four assessment criterias proposed by the European Capital of Smart Tourism, which are Accessibility, Sustainability, Digitalisation, and Creativity and Cultural Heritage. Accessibility emphases inclusivity for all, whether by offering physical accessibility for travelers with disabilities, or by offering information with multilingual options and user-friendly interface to all tourists. Sustainability involves preserving and enhancing the natural environment and resources while balancing economic and socio-cultural development, as well as protecting the economy of the local community. Digitalisation entails providing digital tourist information through ICT-based solutions and digital tools, thus to meet the needs of tourist. Lastly, Creativity and Cultural Heritage involve integrating tangible and intangible aspects of the city's heritage to exploit harmony between tourism and cultural and creative industries.

1.2. Starting and research questions

To provide a clear direction for this business plan, it is essential to define a central research question that this research aims to address: What are the key features and functionalities required in an all-in-one directory smart tourism travel app to effectively meet the diverse needs of tourists visiting Lisbon?

There is a set of sub-questions that are expected to be answered by the end of this research:

1. Which are the key functionalities and characteristics required for application development?
2. Which are the significance and benefits of the development of such an application towards Lisbon's tourism industry?
3. What is the business feasibility and prospects of launching this travel app?

1.3. Importance and Objective

Tourism industry is one of the most important industries in Portugal, considering that Portugal received 30 million guests, of which 18.3 million were foreigners, representing an increase of 13.3% and 19.1% compared to 2022, respectively (Turismo de Portugal, 2024). According to the former Secretary of State for Tourism, Commerce and Services, Nuno Fazenda, stated in a public session of Turismo de Portugal, in Lisbon, 2023 was the best year ever for the tourism sector, which raised revenues of around 25 billion euros (Portugal Government, 2024). With tourism revenues reaching 9.5% of GDP and 48.6% and 19.9% of Exports of Services and Global Exports, respectively.

Lisbon is the most visited Portuguese region in Portugal, ranking 20th on the list of 100 most attractive cities in the world for tourism, according to Euromonitor International (Expresso, 2023). This can be seen by the fact that Lisbon received almost 6.5 million international tourist (Statista, 2023). As tourism sector is a vital sector for Portuguese economy, it is extremely essential to providing an exceptional visitor experience since tourist nowadays are more looking forward to a new way of travel experience with the help of ICT [1](Matos et al., 2019). Developing a travel application to offer up-to-date and pertinent information, not only benefits tourists but also fosters positive feedback and repeat visits, ultimately contributing to Lisbon's tourism growth (Femenia et al, 2018).

Beyond enhancing the retention of tourists, smart tourism is also crucial for international competitiveness as a travel destination. The integration of smart technologies can bring the potential of transforming the city to be a modern and innovative tourism destination, at the same time improve the quality of local residents' lives and society.

The goal of this business plan is to develop a mobile directory application that provides all necessary information and services within a single app. LXplore aiming to address existing tourist pain points – the complexity of accessing tourist information. The specific objective is, first, to aggregate all the tourist service related businesses that are needed during the travel in Lisbon. It is expected to stimulate economic growth, increase the recognition of Lisbon's local tourist business. With the facilitation of tourist information for travellers via technology, in this sense, Lisbon's reputation as a tourist-friendly city can be increased, and this business plan

[1] Information and communication technologies: Diverse set of technological tools and resources used to transmit, store, create, share or exchange information. These technological tools and resources include computers, the Internet, live broadcasting technologies, recorded broadcasting technologies and telephony.

could be an important framework for creating a similar application for another city in the future.

2. CHAPTER 2 Literature Review

2.1. Smart tourism

According to UNWTO, "Tourism is a social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes". Tourism is the world's third-largest industry, in the first quarter of 2024, international arrivals almost recovered to the pre-pandemic levels, with an estimated 285 million tourists traveling internationally, marking a 20% increase compared to the same period in 2023 (UNWTO, 2023)

Smart tourism was first introduced in the 1st meeting of the UNWTO Tourism Resilience Committee in 2009 as "clean, green, ethical and quality at all levels of the service chain" (Lipman, 2009). Smart tourism can be defined as a platform that integrates tourism resources with information and communication technology across all stages of the tourist journey (Habeeb & Weli, 2020). There are three components of smart tourism – smart experience, smart business ecosystem, and smart destination (Ballina, 2020).

Tourism comprises a set of economic activities that offer service to travelers, and information is the key to provide a good service, while, the data collection and process is the hard skill and resource for travel information providers (Moreira et al., 2020). The main forces behind smart tourism are real-time synchronization, pervasive connectivity, and information aggregation (Neuhofer et al, 2015). The main differentiation between e-tourism and smart tourism lies in the integration of technological domains, such as the Internet of Things (IoT)[2], Open Data[3], Big Data[4], and Artificial Intelligence, to create a more efficient and personalized service and exchange of data. This integration aims to optimize resource utilization, enhance sustainability, and generally elevate the quality of life (Moreira et al., 2020). This digital transformation from traditional tourism to smart tourism is thought to be crucial for maintaining the sustainability and competitiveness of travel destinations (Ivars-Baidal et al., 2019). The combination of technological innovation and smart tourism serves as a strategic tool for sustainable development in the tourism sector.

[2] The Internet of Things (IoT) is a network of interconnected devices that can collect and share data over the Internet with minimal human involvement. (Techopedia)

[3] Open data is the type of data that contribute to the common good and should be freely available for everyone to use and share without restrictions such as copyrights, patents or other control mechanisms. (Techopedia)

[4] Big data is very large sets of data that are produced by people using the internet, and that can only be stored, understood, and used with the help of special tools and methods (Cambridge Dictionary)

Within the realm of urban development, the concept of smart tourism emerges as a sub-system under the umbrella of smart cities and smart tourist city is the result of the interconnectedness between a tourist city and a smart city (Habeeb & Weli, 2020). By implementing smart tourism activities including immersive virtual, augmented-reality are expected to be multi-medium supported and more interactive with users (Neuhofer et al., 2014). These interactions which are driven by technology can function either as a mediator or become the core experience itself, users experiences a dynamic, mutual interaction and co-creation, and have the potential to transform traditional experiences and emerge new types of tourism experiences (Femenia-Serra et al., 2018b)

While the development of tourism may present a paradox as it can be a source of negative impacts on urban livability, as it may imply over-tourism and environmental damage. Nevertheless, smart tourism may bring benefits to the society of the destinations and its residents, as it could be a driving force of the city (European Commission, 2022).

Through proper management, tourism resources have the potential to be effectively utilised and maximize their use of it (Wang et al., 2020). This convergence not only mitigates the negative effects of tourism but also enhances its positive impacts from a sustainability perspective. The challenge for tourist cities lies in balancing tourism development and conserving the city's valuable resources, including historical, cultural, architectural, territorial, and environmental assets (La RoccaR. A. 2014). By combining smart city technologies with tourism with thoughtful urban planning, it can ensure there is a sustainable development for both tourists and residents, therefore, local residents will have a positive attitude towards smart tourism (Ritchie and Crouch, 2005). It is noted that the competitiveness of both smart cities and smart tourism destinations can be enhanced through the adoption of innovative technologies to enrich tourism experiences (Jasrotia, 2018). The level of satisfaction experienced during a trip significantly impacts both destination satisfaction and the likelihood of travelers to revisit. Improving the overall travel experience can enhance travelers' intentions to return, indicating that solely emphasizing destination attributes may not sufficiently ensure tourist satisfaction (Acharya et al., 2023).

Furthermore, the significance of smart tourism extends beyond local benefits to the repositioning of European destination brands in the tourism market. Significant trends are reshaping today's tourism industry, including a shift towards sustainable and responsible tourism development, technological advancements disrupting traditional business models, and the necessity for effective tourism governance to build resilient destinations. Destination Management Organizations are transitioning from tourism marketing to strategic destination

branding, presenting an opportunity to enhance Europe's overall destination brand (Ferrer-Roca et al., 2020). Especially, pursuing the status of smart destination by encouraging innovation and adopting data-driven solutions (European Commission, 2022). Collaborative efforts between national, regional, and local governmental institutions and Destination Management Organizations (DMO) are essential to develop efficient strategies tailored to each destination (Ferrer-Roca et al., 2020).

Smart tourism is a rapidly evolving field that utilizes advanced technology to enhance the tourism experience and is one of the key consideration when making decisions about a trip. It involves the integration of various types of information technology, including the Internet of Things, without this key integration, it would remain traditional. However, implementing IoT in smart tourism poses significant challenges, since IoT narrows the gap between the digital and physical worlds. One primary challenge is the management of a vast amount of data and ensuring low-latency communication (Wang et al., 2020). Additionally, the issues of privacy and data management stand as obstacles to this progress. An essential aspect of improving travel experiences in this context hinges on the willingness of travelers to share their personal information (Gretzel et al., 2015).

2.2. Tourism mobile apps

Portable gadgets such as smartphones and tablets have become fully integrated to daily life, mobile devices are becoming the primary means of internet access for more than half of global users (Guo et al.,2019). Mobile tourism applications enable tourists to have access to real-time information at their destinations, regardless of time and location constraints. Consequently, these mobile applications significantly impact tourist satisfaction (Erdem, Kayran, & Şeker, 2020). Technological advancements are driving a significant transformation in the tourism sector, customers now actively engage in co-creating information. User-generated content will bring a powerful influence in tourism marketing (Buhalis & Law, 2008), especially in this word-of-mouth society.

These modern social networks have influenced modern tourism marketing and it requires a reevaluation of traditional marketing strategies. Therefore, using information and communication technology (ICT) becomes imperative to devise innovative marketing and promotional initiatives for future European destination branding (Ferrer-Roca et al., 2020).

Even though there is not a clearly defined typology of smart application, three conceptual typologies of applications emerged that can be discussed. Firstly, information-centered apps, which prioritize providing tourists information that are for navigating their destination,

including features such as QR codes[5], virtual guides, and interactive maps. Secondly, tourist-centered apps aim to enhance the tourist experience base of their preference, often leveraging technologies such as Augmented Reality to provide immersive experiences for specific attractions. Finally, tourist-engaging apps empower tourists to actively participate as "urban sensors", contributing to the monitoring of urban inefficiencies through platforms like social media and big data analysis (La Rocca, 2014).

Perceived advantages from tourist mobile apps such as convenience, time-saving, and financial benefits are among the most crucial factors influencing the choice of public using technology product in service industries (Mohamad, Radzi, & Hanafiah, 2021). Time-saving is the most significant factor influencing the use of tourism mobile apps, followed by convenience and technological self-efficacy. By contrary, the study suggested that the perceived financial benefits do not significantly affect the usage of mobile apps (Ferhat Şeker et al., 2023). Moreover, in today's landscape, smartphones can enhance tourist experiences by providing better connectivity, easy access to information, and increasing users' sense of security (Dias & Afonso, 2021)

Moreover, in the field of tourism applications study, there is a lack of data on app users and usage patterns, presenting a gap in research on the demand side of mobile apps and tourists' app usage (Birenboim et al., 2023), as well as from the user's perspective.

2.3. Strength of mobile app in tourism

The pervasive use of smartphones is propelling the mobile applications market to develop as one of the most rapidly expanding media platforms. This transformation influences various dimensions of people's life, with tourism sector standing as no exception, this rapid advances in technology have changed the way of how businesses reach business-consumer interactions in the tourism industry (Abu Bakar et al., 2020).

The rise of sharing economy platforms and online travel agencies disrupts traditional models, offering consumers more choices and increasing competition. These shifts reshape tourism, driving innovation in service delivery and consumption, mobile applications not only being smart, but it also decreases the dependency on human resources and reducing the maintenance costs (Abdul Rashid et al., 2020). This brings the rise of independent travelers and their shifted preference from having packages and defined itinerary options (Buhalis & Law,

[5] Quick Response Code is a type of bar code that consists of a printed square pattern of small black and white squares that encode data which can be scanned into a computer system. (Britannica)

2008) towards more personalized interactions, highlighting changing tourism dynamics. The gathering of information based on each individual's preferences helps to better meet the needs and interests of tourist (Moreira et al., 2020).

Due to the high adaptation of technology and user-friendly interface of travel app, users can now easily dominate the app in a short period of time, therefore users are more willing to try out new app because of its easiness (Ree C. Ho & Amin, 2019). By utilizing intelligent elements, such as IoT or mobile application, this can better cater to tourists' needs pre-trip, in-trip, and post-trip, thereby increasing destination competitiveness (Femenia-Serra et al., 2018). Undoubtedly, compared with websites, mobile applications offer significant advantages, notably their ease of use, speed, and accessibility regardless of distance or time, particularly in managing tour trips.

Smart tourism includes virtual reality[6] and augmented reality[7] technologies, which provide new ways to strengthen the engagement of travelers with destinations and bring a new level of immersive experience. Hyperreality[8] blends physical and virtual realities through a new vision of the future, which increasingly demonstrates the interconnectedness of the IoT. The aim is to create a realistic environment in which the user is unable to distinguish between real and virtual elements, interacting with a single environment (Bach & Scapin, 2004).

2.4. Travel mobile apps insights

In the two main app stores for Google's Android and Apple's iOS operating systems, the high app download rate demonstrates widespread acceptance of smart technology in the tourism industry, 3,030,700,000 (data.ai, 2024). For both Apple App Store and Google play had over 2 million apps available for download as of 2024 (42 matters, 2024).

Smartphones offer a variety of services and information for travelers, this addresses travelers' information needs throughout their journey. Flight booking, hotel reservation, vacation rental, travel itinerary planner, travel guide, navigation and maps, language translation, currency converter etc (Makhija, 2024). These softwares offer novel experiential opportunities to tourists, facilitating discernment and consumption of destinations through inventive means (Wang et al., 2012).

[6] Virtual reality (VR) is a simulated experience that employs 3D near-eye displays and pose tracking to give the user an immersive feel of a virtual world. (Wikipedia)

[7] Augmented reality (AR) is a technology that involves overlaying visual, auditory, or other sensory information onto the physical environment to enhance one's experience. (Investopedia)

[8] Hyperreality is the inability of consciousness to distinguish reality from a simulation of reality, especially in technologically advanced societies.

For an effective application development, interactivity is crucial, enabling a two-way communication for addressing doubts or seeking assistance when needed. Moreover, there is analysis of design features indicating that users generally favor intuitive interfaces and thoughtful user-interaction designs. Conversely, users tend to disapprove of apps that merely act as a portal to websites and those characterized by unreliable programming (Abdul Rashid et al., 2020). When deciding to install a new travel app, ease of use is a primary consideration for most users. The top motivating factors for downloading travel apps include the desire to make a specific activity or task easier, receiving recommendations from others, and accessing discounts or special offers (Google, 2016).

The era of the Industrial Revolution (IR4.0)[9] has ushered in a paradigm shift in human interaction dynamics, wherein interpersonal relationships and communication are increasingly mediated online. Consequently, there is a discernible impact on the traditional values of human relations (Abdul Rashid et al., 2020), as potentially marginalizing physical interactions and activities, in this case, are the physical tourist-related businesses such as travel agencies, tourist centers etc.

However, the utilization of mobile applications pertains to the varying levels of 'skill' among tourists in using the internet and digital tools. Specifically, middle-age group of users may lack of skill compared to teenagers, certain segments of the tourist population may encounter challenges in full leveraging these applications (Abdul Rashid et al., 2020).

[9] Industry 4.0 is the realization of the digital transformation of the manufacturing sector, delivering real-time decision making, enhanced productivity, flexibility and agility to revolutionize the way companies manufacture, improve and distribute their products. (IBM)

3. CHAPTER 3 Methodology

The objective of the study is developing a tourist app that facilitates the tourist experience in Lisbon by redirecting the user into the corresponding service application/websites that will be needed when traveling in Lisbon. The criteria of selection of the application/website will be based on the reference of the 4 pillars of smart tourism: Accessibility, Sustainability, Digitalisation, and Creativity and Cultural Heritage.

After outlining the core value of the project and in order to analyze the significance and benefits of the development LXplore towards Lisbon's tourism industry, the follow sections will detail the steps and methods used to achieve a strategic plan, it is expected that this framework will be utilized for future reference and study.

In the first part of this dissertation, the literature review aims to define the studies of key technical terms such as tourism, smart tourism, travel mobile applications and trends. Given the relatively recent emergence of these terms, clarification is essential to ensure a unified understanding among readers. To achieve this goal, scientific papers, books, and published statistics relevant to the research topic are thoroughly analyzed, in order to provide potential readers for the current and future context for smart tourism in Portugal.

Secondly, in the process of developing this comprehensive business plan, a mixed research methodology will be employed to get the first data from industry specialists and target users/customers.

3.1. Qualitative research- Exploratory interview

To obtain the most accurate insight, in this research, exploratory interview method is employed to assess the feasibility and the functionalities of LXplore. Exploratory interviews is a crucial methodological approach in the initial stages of research, in this case, qualitative research is implemented before the quantitative method which will be presented in the next section. Exploratory interview come along with predetermined questions (Creswell, J. W. 2013), but the open-ended questions can allow respondents can reply freely, thus to obtain macro-context of the field in study. The objective is to provide preliminary research or insight on the contextualization of the tourism sector in Lisbon.

3.1.1. Exploratory interview sample

In order to have more convenient and efficient study, exploratory interview will be using online interview method. Given the busy schedules of the experts and the constant difficulty of combining schedules, a document containing an abstract and two open-ended questions, were sent via email to a carefully selected three experts in the tourism sector (Annex B). These participants are chosen based on their academic and professional backgrounds, ensuring they

are experts or professors in the tourism field, making them the best fit for this study. Then, that will enhance in-depth understanding of the tourism context in Portugal, or more specifically Lisbon, allowing for a strategic planning for the tourist application.

The purpose of qualitative study will be as follows

1. To better understand the bigger picture of the current context of the tourism sector.
2. To better understand which aspect of tourist resources Lisbon is lacking.

3.1.2. Quantitative research

The reason for selecting the mix-method approach was, first, after obtaining a comprehensive understanding of the tourism sector, and with the same relevancy, to understand the end-user's necessity and pain point during their travels. This dual approach ensures a holistic analysis, capturing broad industry trends as well as individual user experiences.

The purpose of quantitative study will be as follows:

1. To understand user patterns regarding travel app.
2. To better understand the preference of travelers
3. To evaluate the importance of each feature in LXplore.

The quantitative method, in this case, online survey, Google form will be used as the platform to obtain response. The questionnaire will be distributed online with the same questions in the same order, all the questions are initially prepared by the author. The survey consists of four sections with a total of 23 questions: demographic information, traveler experience and needs, opinions on the proposed LXplore features, and importance of features rating (Annex C). Upon collection, the data will be subjected to statistical analysis.

3.1.3. Data analysis

Next, to check the market feasibility of this idea, an external analysis is important to conduct, that is macro and microenvironment analysis of the market, for macroenvironment analysis, the PEST (Political, Economic, Sociocultural and Technological) planning tool was used. To further test the competitiveness of LXplore, Porter 5 forces was also conducted based on the researcher's business idea. Secondary data were gathered from the official sources available online, including OECD, UNWTO, European Commission, and Eurostat; all these materials contain the most updated information available online.

4. CHAPTER 4 Analysis and discussion of results

4.1. Exploratory interview results

In the exploratory interview, the open-ended nature allows the users can reply the question with some guiding questions that contributed to discovering key themes. In this section, frequency tables will be applied to analyze qualitative data obtained in the interview by quantifying the occurrence of specific terms by the interviewees. The table is divided into two questions, with sub categories indicating of the aspect mentioned in each question.

For the first question: "How would you evaluate Lisbon's tourism sector's current technological and digital infrastructure development?" There are three sub-categories given as guiding question in this question, which are, existing problems and painpoints, current technological and digitalisation implementation and lacking aspects.

The major issues identified in this category highlight problems such as "traffic congestion/jam and "Too touristic (frequency: 2), too many local accommodations, and tourist flow—accessibility, general accessibility problem (frequency: 1). In terms of the current technological infrastructure in Lisbon tourism, some digital tools and services were mentioned, in which digital tourism platforms and virtual tours appear most frequently (frequency: 2), while other solutions like AR & VR, AI robots, green transportation– sustainability and personalised recommendation (frequency:1). Several lacking aspects are identified, namely, real-time data sharing, coordination of technology between public and private entities, and tourist flow management each being highlighted as areas needing improvement (frequency:1).

For the second question: "How would you comment on the level of smart technology integration in the tourism sector in Lisbon?", the sub categories are defined as the same as the first question: technological and digitalisation implementation, and improvement to be made. In the answers, digital services and platforms- App are cited most frequently (frequency: 3), followed by AR & VR (frequency: 3), Public Wi-Fi and physical and informational accessibility (frequency:1). For the lacking aspects in Lisbon, issues like cross-platform integration, expansion of AR & VR, and the personalization of services are mentioned as needing further development (frequency: 1).

In conclusion, the analysis of the two open-ended questions provides a better understanding to the current problem in Lisbon's tourism, as the most mentioned issue is related to traffic problem, which is highlighted as a critical factor negatively impacting the overall visitor experience in the city. The current use of digital platforms, including mobile apps and digital tourism platforms, can be seen as one of the biggest improvements for Lisbon tourism sector. The integration of tools such as AI robots and AR/VR exists but is underutilized,

indicating that Lisbon's tourism sector has a foundation but lacks more widespread application of advanced technologies. This suggests that while the technological foundations are in place, there is a notable gap in the widespread implementation and utilization of these tools. The three respondents has all mentioned that even though there is great improvement in implementation of digital tools in Lisbon's tourism sector, there is still room for improvement since Lisbon is now in an infant phrase for smart technology.

Category	Sub-category	Words/Phrase	Frequency	Cumulative Frequency
1. How would you evaluate Lisbon's tourism sector's current technological and digital infrastructure development?	existing problems & pain points	Traffic problem / jam	2	7
		Too touristic	2	
		Too many local accommodation	1	
		Tourist flow-accessibility	1	
		accessibility	1	
	current technological and digitalisation implementation	Public Wifi	1	9
		Digital Tourism platform -App	2	
		Virtual Tour	2	
		AR & VR	1	
		AI robot	1	
		Green Transportation - sustainability	1	
		Personalised recommendation	1	
	lacking aspect	real time data sharing	1	3
		coordination between public and private entities	1	
		Tourist flow management	1	
2. How would you comment on the level of smart technology	technological and digitalisation implementation	Digital Tourism platform -App	3	8
		AR, VR & virtual tours	3	

integration in the tourism sector in Lisbon?		Public Wifi	1	
		physical and informational accessibility	1	
	Improvement should be made	cross plataform integration	1	3
		expansion AR and VR	1	
		personalization of services	1	

Table 4.1: A frequency table

Source: Author

4.2. Questionnaire results

After obtaining the macro-context of tourism sector in Lisbon from section 4.1, it helps better understand and to define the direction of the questionnaire, which is essential to collect primary data from potential user. There were 73 participants responded to this questionnaire, regarding the questionnaire design, from general to specific questions, the questionnaire is divided into three sections, from general question about demographic, then deeper into traveler experience and needs, ending with features acceptance and importance rating about LXplore. These data will be crucial for informing future marketing and development strategies, helping LXplore to define more effective marketing strategies and guide the ongoing development of LXplore.

4.2.1. Demographic

In the section of demographics, the majority of respondents fall within the 18-25 age range (60.3%), followed by the 26-35 age group (21.9%). Travel frequency is another important information, 60.3 % of the respondents travel once to two times per year, with 23.3% traveling three to five times. Notably, 11% of respondents travel more than 5 times per year, while 5.5% do not travel to another country at all. Within these tourist, 87.7% of them are usually arranging their travel by themselves.

4.2.2. Tourist patterns

The second section is to understand the tourist patterns, the majority of the respondents obtain travel information via social media (86.3%), followed by mobile apps (68.5%) and travel websites (61.6%). When asking about the most challenges encountered when travelling to new places, the most common challenge is the lack of information or complexity on transportation, and another most common frustrations are the language barriers to orientation (42.5%) and difficult in organizing all the necessary travel information (37%).

More than 70% of the respondents has experienced the inconvenience of needing to use different local apps when travelling to another country. And the dependency rate of respondents to technology is high, with 37% and 35.6% of respondents rating their dependency at levels 4 and 5, respectively.

4.2.3. Proposed features

The third section assesses respondent's reactions regarding the feature proposed in LXplore, the following features were rated on a scale of 1 to 5 based on their perceived importance. The feature for comprehensive coverage of essential services and information received the highest average rating of 4.07, with regular updates and new features, average rating of 3.96, multilingual support: average rating of 3.90. Customer support and assistance, average rating of 3.75. Community forums and user feedback integration, average rating of 3.67.

4.3. Conclusion & limitation

The questionnaire is designed to provide valuable information on how various demographic factors influence tourists' preferences for the features proposed in LXplore. The data indicates that the primary end-user for LXplore consists of tourist aged 18 to 45 years, who typically travel once or twice annually and prefer self-guided tours. Additionally, these users rely on social media or travel apps to gather travel information. Users think they tend to struggle in finding the most updated and accurate information, and with LXplore, a comprehensive tourist information can help them better organize their trips, thus improve travel satisfaction. Result has also revealed a strong user preference for detailed information for transportation, local attractions and restaurants. In terms of LXplore characteristics, participants found it important to have a user-friendly interface (52,8%). Notably, 46,6% of respondents expressed a strong interest (rating 5) to show a strong interest to try out LXplore and 78.1% of respondents expressed a clear interest in using LXplore if it were to expand to other countries.

For limitation, 73 respondents may be the small sample size of, a larger sample would provide a more accurate representation of diverse tourist experiences and preferences. The findings may not be representative enough of the broader population, that is, the Lisbon tourist, and it may imply a difficulty in analyzing how different demographic groups may respond differently, since the questionnaire was distributed through social media, it may be limited to certain groups.

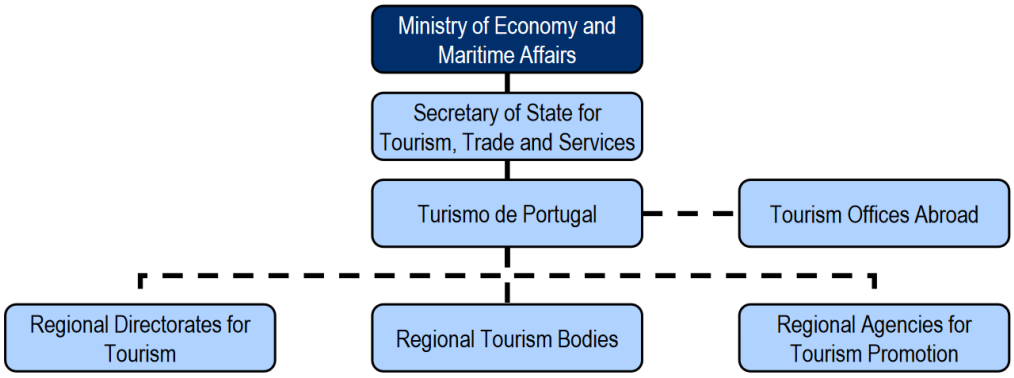
5. CHAPTER 5 External Analysis

5.1. PEST Analysis

This section will examine the political, economic, social, and technological dimensions in Portugal. Through a PEST analysis, external factors that shape the tourism landscape of Portugal can be understood. This PEST analysis will initially focus on a broad context of Portugal, followed by a subsequent focus on factors in each dimension that specifically influence the tourism sector in Lisbon.

5.1.1. Political-Legal Context

Politics are important to businesses, such as political stability, government policies and regulations, legal frameworks that shape the business environment. Portugal is a semi-presidential constitutional republic including sovereign bodies: The President of the Republic, Parliament, the Government, and the courts.



Source: OECD, adapted from Turismo de Portugal, 2022.

Graphic 5.1: Portugal: Organisational chart of tourism bodies

Source: OECD

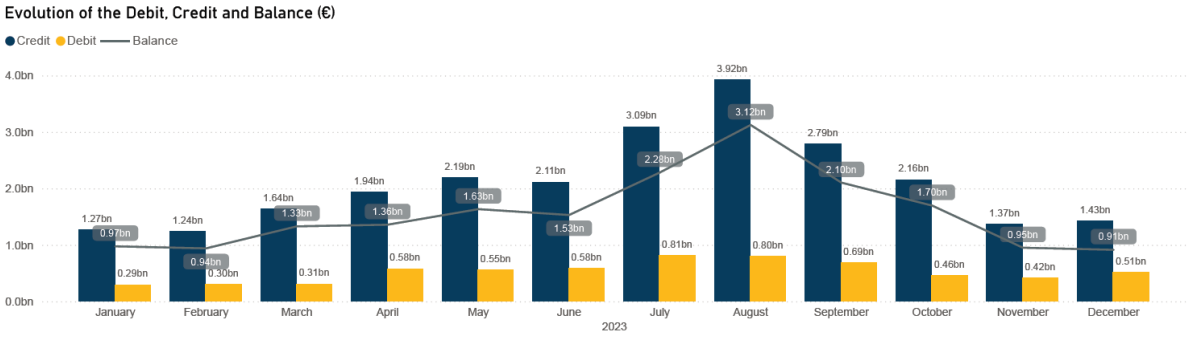
The stability of governance structures in Portugal has a profound impact on Lisbon's tourism industry. However, due to the abrupt resignation of the country's prime minister amid a corruption investigation, precipitated a swift recalibration of the political arena, and a new parliamentary election was held on the 10th of March 2024. Therefore, the change in government policies and regulations about taxation, infrastructure development, and tourism initiatives would profoundly shape the landscape of the tourism industry. In 2023, Portugal dropped one position to 34th ranking among 180 countries in the Corruption Perceptions Index, scoring 61/100 which is a score of 100 in a very corrupt country and 0 is highly corrupt from the Corruption Perceptions Index. Further underscores the importance of effective governance in shaping the country's reputation and attractiveness as a tourist destination.

Portugal has been a member of the European Union since 1986, which deepens relationships among the European countries in many aspects, and Portugal is strongly influenced by European Union policies. The European Commission's Tourism Unit is dedicated to coordinate European tourism policies. Tourism Advisory Committee – TAC is responsible for facilitating the exchange of information, consultation and cooperation between the Tourism Administrations of all the EU member countries and the European Commission. As the representative of Portugal, Turismo de Portugal attends the Committee meeting held twice a year. Smart tourism destinations are becoming more prevalent in the European tourism scene. There are several initiatives proposed by the European Commission, such as European Tourism Forum, European Capital of Smart Tourism, EDEN (European Destinations of Excellence), Virtual Tourism Observatory (Turismo de Portugal).

In the national context, Portugal also have several funding programs and initiatives for entrepreneurs, developed by IAPMEI, aim to strengthen the Portuguese entrepreneurship ecosystem by offering incentives and support across three key areas: Innovation and Competitiveness, investment and funding incentives, Competitiveness Clusters, each offering valuable resources and support to aspiring and existing entrepreneurs. In 2018, The Government launched the Startup Portugal+ Programme, including many new measures e.g. Startup voucher, Incubation Valley, Pitch Voucher etc. (eportugal).

5.1.2. Economic Context

Economic variables play a seminal role in delineating the contours of Lisbon's tourism economy. Fluctuations in macroeconomic indicators, including GDP growth rates and exchange rate, have far-reaching implications for tourist expenditure patterns and overall market demand. The global lockdowns by Covid-19 badly affected the Portuguese economy in 2020 and to improve its economy, Portugal focused more on tourism and exports while continuing to clamp down on public-sector spending. In 2021, the Portuguese government launched the program "Reactivate Tourism - Building the Future" with the aim to encourage the recovery of the national tourism sector (OECD, 2022). In 2023, the tourism sector achieved its highest figures with revenues of around 25 billion euros. (Governo de Portugal, 2024)



Graphic 5.2 : Tourism Receipts Balance of Payments, 2023

Source: Banco de Portugal

Gross Domestic Product

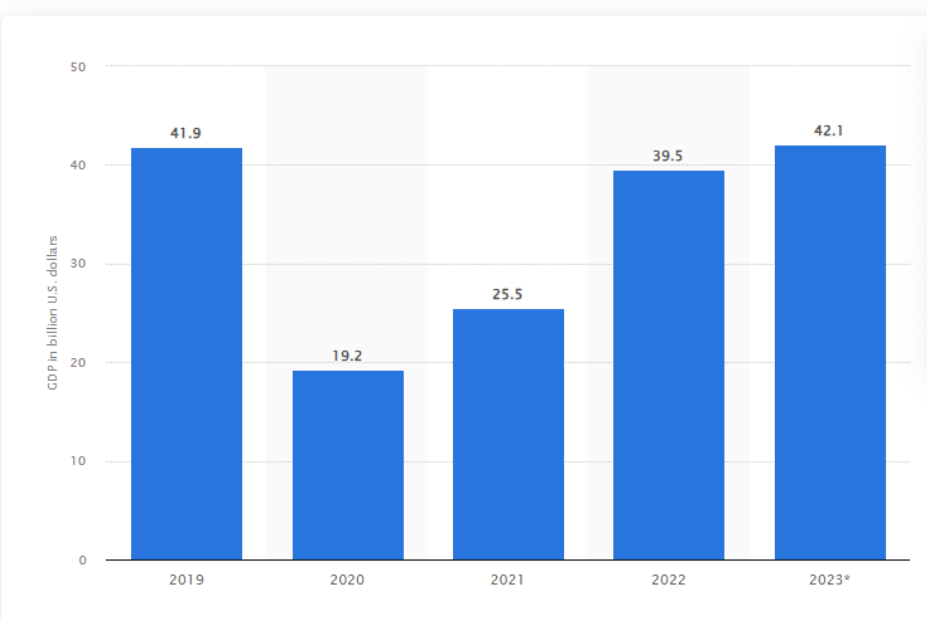
In the tourism industry, tourism revenues reached 9.5% of the GDP and 48.6% and 19.9% of Exports of Services and Global Exports, respectively(INE, 2023; Banco de Portugal, 2023). As stated in the guideline of Tourism Strategy 2027, there are several European funding programs under the Multiannual Financial Framework (*Quadro Financeiro Plurianual*) for the year 2021 to 2027, some of which have been significantly strengthened, such as Erasmus+, the European Solidarity Corps, Horizon Europe and programs to support migration and border management. The emergence of new priorities, particularly in terms of the ecological and digital transition, has led to the creation of new programs such as Digital Europe (Turismo de Portugal, 2017)

Exchange Rate

The exchange rate is another important indicator influencing the tourism industry, affecting destination competitiveness and domestic tourism trends etc. Fluctuations in exchange rates can attract or deter international visitors, impacting tourism revenues and the overall tourism industry. In general, the exchange rate not only shapes tourism dynamics at both inbound but also outbound tourism. From the statistics of the European Central Bank, the current exchange rates of the euro against major currencies such as the US dollar (USD 1.0811), Chinese yuan (RMB 7.8144), and Japanese yen (JPY 163.45) have significant implications for the tourism industry. A euro to US dollar, 1.0811 indicates a relatively weaker euro compared to the US dollar, potentially making European destinations more affordable for American tourists. These exchange rates influence tourist flows, with destinations experiencing increased arrivals from countries where the euro is stronger and reduced visits from countries with weaker currencies (Eurostat, 2024).

Portugal's travel and tourism sector experienced a notable recovery after the COVID-19 pandemic. The sector's contribution to the country's gross domestic product (GDP) rebounded with the lowest of 19.2 billion USD in 2022 to 42.1 billion in 2023 indicating a strong recovery

trajectory. Despite the pandemic-induced drop in 2020, the sector had previously represented over 40 billion U.S. dollars of the Portuguese economy. This shows the Portuguese tourist sector's resilience and recovery, implying a continued growth and contribution to the country's economy in the coming years (Statista, 2023).

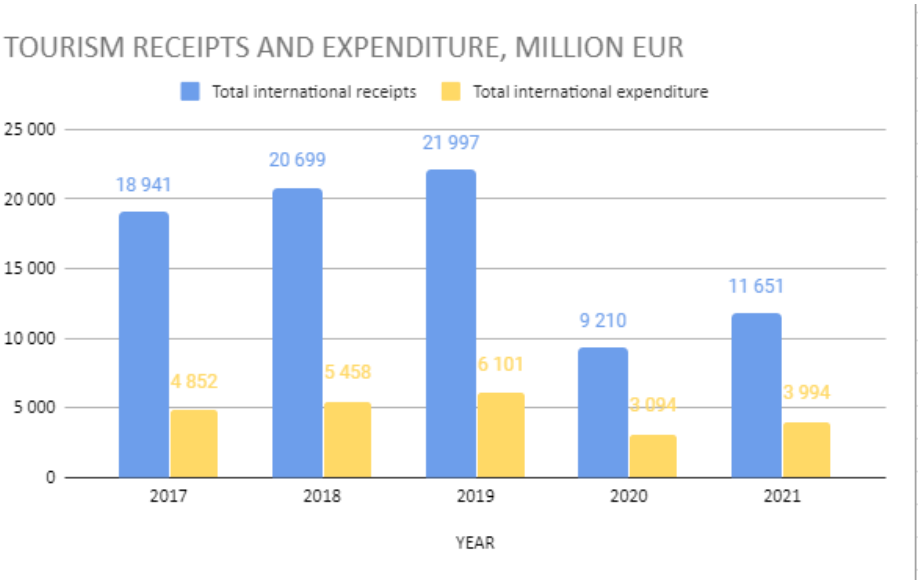


Graphic 5.3: Total contribution of travel and tourism to the gross domestic product in Portugal from 2019 to 2023, in billion U.S. dollars

Source: Statista

Inbound expenditure of Portugal

From total international tourism receipts, there is a consistent upward trend from 2017 to 2019, with 18,941 million EUR to 21,997 million EUR. Despite the challenges brought by the pandemic in 2020, there is a notable recovery in 2021. Similar to tourism receipts, international expenditure saw a decline in 2020, dropping to 3,094 million EUR due to COVID-19 (OECD 2022)



Graphic 5.4: Tourism Receipts and expenditure, million Euro

Source: OECD 2022

There is a positive net receipt on international tourists, which signifies a boost to the local economy, as the surplus revenue can contribute to economic growth, employment opportunities, and investment in tourism infrastructure and services.

5.1.3. Social Factors

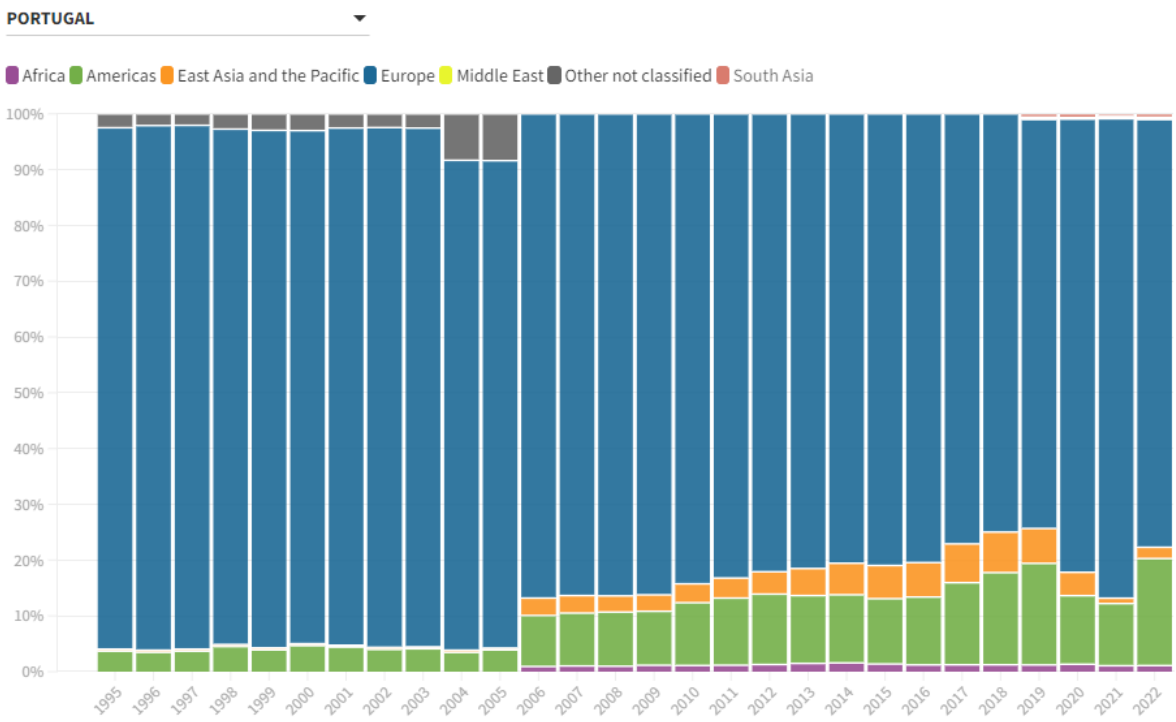
Immigration

The number of immigrants in Portugal can have a significant socio-cultural impact, an inclusive society fosters a sense of security for residents and visitors, enhancing Portugal's reputation as a safe and welcoming destination. The graphic below shows permanent immigrants, categorized by nationality, from 2008 to 2022. Including the overall volume of immigration, the proportion of Portuguese versus foreign immigrants, indicates that the number of immigrants is increasing dramatically, especially since 2018, from about 50,000 to about 120,000 by 2022. (Portada, 2024)

Demographic of international tourism arrivals in Portugal

By analyzing the nationality of tourists visiting Portugal provides insights into cultural preferences, travel behaviors, and language considerations. For the number of international tourism arrivals in Portugal in 2022 categorized by the country, Spain emerges as the leading source of international visitors, due to the geographic proximity with a significant influx of 57,367,000 tourists. France and the UK follow closely, with 29,556,000 and 29,275,000 visitors, respectively. These figures highlight the importance of European markets for Portugal's tourism industry (Portada, 2022).

To look at it in a broader sense, In 2022, Europe will dominate as the primary source region for arrivals to Portugal, albeit with a slight decrease to 76.67%. East Asia and the Pacific show a marginal increase in their share to 2.03%, indicating a potential uptick in arrivals after the pandemic. Meanwhile, the Americas experience a modest increase in their share to 19.18%, signaling a resurgence in travel demand from the Americas (Statista 2023).



Graphic 5.5: Arrival in country by region of origin

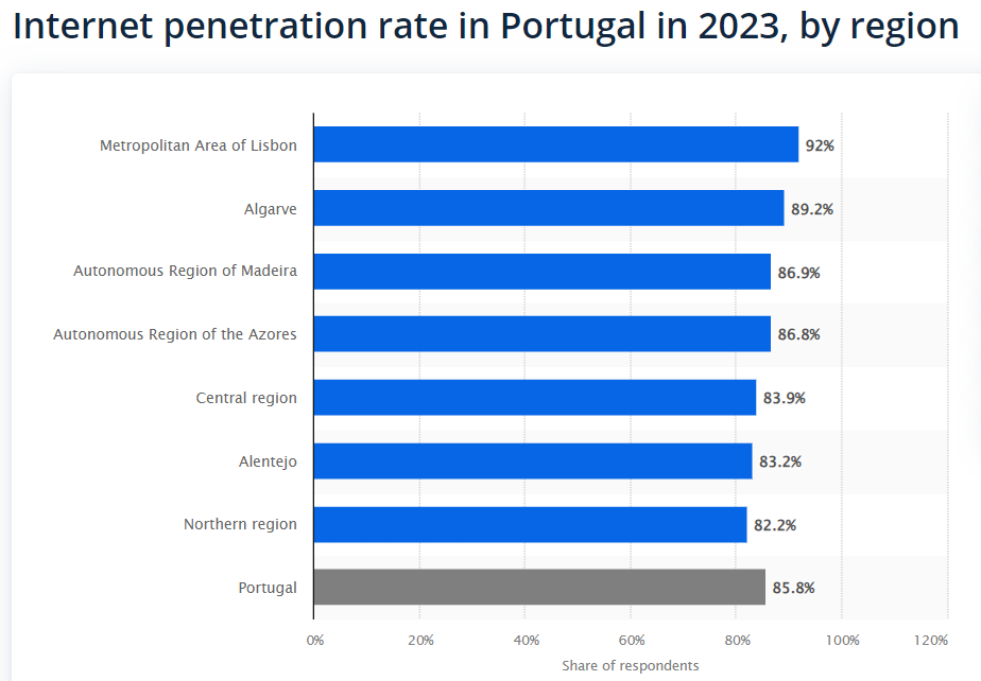
Source: Statista (2023)

5.1.4. Technological Factors

Digital skills are becoming increasingly essential for both personal and professional life. Currently, more than 90% of jobs in Europe require basic digital knowledge alongside traditional skills like literacy and numeracy. However, approximately 32% of Europeans still lack basic digital skills (European Union, 2023). Technological advancements constitute a transformative force in redefining smart tourism engagement in Lisbon. The proliferation of big data, digital platforms, mobile applications, and immersive technologies has revolutionized the traveler experience. Portugal, was known as one of the best travel destination of the European market and its advanced technological infrastructure, brought innovation and business growth. This cultural diversity enhances English proficiency among the residents, facilitating collaboration with global companies and audiences, reinforcing Portugal's

reputation as a welcoming hub for global initiatives. Portugal boasts a thriving ecosystem of innovation centers and technology clusters, fostering competition and business expansion, fueled by ample funding opportunities tailored for startups and tech firms.

The graphic shows the internet penetration rate in Portugal by region for the year 2023. The internet penetration rate is highest in the Metropolitan Area of Lisbon at 92%. This indicates that Lisbon, as the capital, has the most connected population with the national average 85.8%, indicating that Lisbon region's internet penetration rate places it above average. (Statista, 2023)



Graphic 5.6: Internet penetration rate in Portugal in 2023, by region

Source: Statista (2023)

5.2. PEST analysis conclusion

To sum up, the PEST analysis presented the complex interplay of external factors shaping Lisbon's tourism industry. Politically, Portugal has a stable governance and has a very supportive regulatory framework and initiatives for Portugal's tourism industry. Economically, the sector shows resilience with significant contributions to GDP and positive recovery of post-COVID-19, showing the tourism sector's resilience and its critical role in Portugal's GDP. Socially, the tourists in Portugal are mainly tourists from Europe, which shows a stable European market, but there may also be a need for broader market diversification to mitigate risks associated with economic or political shifts in the European Continent. Technologically, Lisbon's advanced digital infrastructure and high internet penetration support smart tourism,

emphasizing the critical role of digital platforms in modernizing and sustaining tourism activities.

6. CHAPTER 6 Market Analysis

6.1. Target market behavior

Tourism is one of the fast-growing industry, and it is one of the factor for the growth of world's economy (UN tourism, 2023). Main markets in Lisbon that has the largest growth in overnight stays from January to May in 2024 are China (91.5%), Canada (24.5%), the USA (13.9%) and the UK (10%) (Travel IBI, 2024).

At the same time, travel apps industry had a market size of $629 billion in 2023 worldwide, compared to a 13% increase on the previous year (Travel app report, 2024), Over 850 million people used travel apps which shows the increasing reliance on mobile technology. From a report conducted by data.ai, STATE OF MOBILE 2024, has stated the travel apps top three ranking by market worldwide are, Uber (Transportation), Where is my Train (Transportation), Booking (Integrated travel service).

In the mobile app market in Portugal, a total of 349.1 million mobile apps were downloaded in 2024, indicating a high level of user engagement with digital platforms. The dominance of Android devices, accounting for 68.94% of mobile web traffic, compared to 30.62% from Apple iOS devices, indicates a larger reach of Android operating systems than iOS. Media consumption patterns reveal that 99% of internet users use the internet via a mobile device, 96.1% via a laptop, desktop, or tablet (datareportal, 2024). The exponential growth in travel app downloads and usage reflects consumers' shift to digital platforms to plan and enjoy their travel experiences (Destinos America).

6.2. Current context and future trends

In a focus groups organized by Turismo de Lisboa (Tourism strategy 2027, 2017), several weaknesses in Lisbon's tourism were identified, particularly in relation to the availability of information about Portugal's diverse offerings. Participants highlighted a lack of comprehensive information about Portugal's diverse attractions, beyond the most frequently visited beaches. Portugal is still struggling to gain recognition for its broader cultural and natural attractions. The group also noted deficiencies in the availability of information and mobility solutions for tourists navigating Portugal.

The shift towards digital solutions in tourism has accelerated. Travelers increasingly rely on apps for bookings and navigation. Technological advancements play a major role in the tourism industry in Portugal, from the report conducts by datareportal, the country's annual online spending on travel and tourism services highlights the growing reliance on digital platforms on flights are $1.25 billion, $66.5 million on trains, $131.6 million on car rentals, and

$35.04 million on long-distance buses. From these values, we can see travelers are relying heavily on online services in facilitating tourism activities (datareportal, 2024).

Regarding the future trend in tourism app, emerging technologies such as augmented reality (AR) and virtual reality (VR) have gained significant attention as revolution tools within the tourism app industry by providing immersive and interactive to tourist in their trip. This trend is expected to continue developing, as these technologies enhance the overall visitor experience. AI will continue to be a strong tool in terms of tourism app industry, to offer even more personalized experiences such as a more accurate personal recommendation. AI-driven personal assistance will also be more common, providing real-time support and information.

6.3. Porter 5 forces

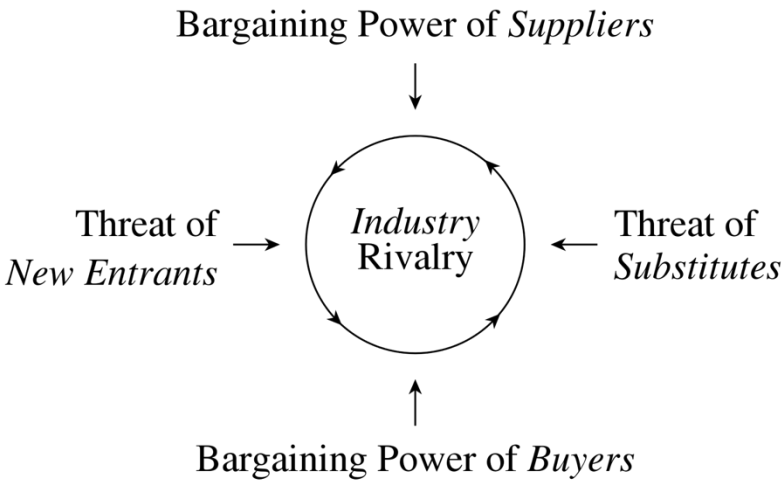


Figure 1: Porter 5 forces

Porter 5 Force is a model introduced by Michael E. Porter in the 1970s, this model indicated five forces of competition in a microenvironment. By using this model, it can provide a better company strategy to evaluate the company's strengths and weaknesses in industry's competitive forces.

The first force is threat of new entrants, poses a moderate risk for LXplore. The barriers for competitor to entry high, barriers such as, development costs of the mobile application, strong establishment of reliable partnerships with local service providers, strong customer loyalty. Therefore, in order to remain competitive, LXplore must constantly develop its product and provide up-to-date information by monitoring closely the market and the new applications that tourists may be interested in. Additionally, it is important to have a good marketing strategy, to establish a brand that everyone distinguishes as the exclusive app needed in Lisbon, which differentiatin LXplore from its competitors, LXplore can create a strong brand loyalty.

Second, for bargaining power of suppliers is considered low to moderate. This force determines the bargaining power and thus affects the profit margin of the company. For LXplore, there are two type of suppliers, the first type is technology-related provider. For a mobile application, all the operation and maintenance related company are crucial suppliers of LXplore. Ideally, it is hoped to establish a strong supplier relationship and to have the same technological service company since there will be all the data stored in the server and if there is any change of the company, it will affect the daily operation and user experience. However, due to technological advancements, application coding companies are highly competitive, therefore it has a wide availability of these services. Consequently, the switching cost for LXplore is not high, allowing the company to transition between coding companies with relative ease if necessary.

For the next force, bargaining power of buyers is low, this force is important since it indicates whether customers can apply pressure to LXplore in order to lower product prices, increase product quality. However, as mentioned above, the application will be free of charge for end-users, therefore the bargaining power for end user is not applicable. As for collaborative partner, since LXplore does not have any direct competition, and as the company is expected to be only one app for tourist in Lisbon, 'buyers' in this case, the listing companies, does not have another choice in terms of competitors.

The threat of substitute products or services is high. The objective of LXplore is to minimize the need to use multiple apps independently, even though there are no any similar applications that offer the directory service for Lisbon, however, the low switching costs is low, users can easily move to other similar aggregation apps or even, in substitution, using individual service apps.

Lastly, for industry rivalry is high, LXplore does not have any direct rivals, however, there are some indirect competitions that offer similar service but not only operating in Lisbon. On the other sides, existing applications that tailor-made for the travelling in Lisbon, but the interface and service they offer are comparative poor. Therefore, LXplore maintain a strong competitive value, LXplore focusing on providing the most comprehensive and user-friendly aggregation service specifically tailored to all the tourist or even for locals in Lisbon, it can be considered as a sustainable competitive advantage through innovation.

7. CHAPTER 7 Internal Analysis

The internal analysis section provides a comprehensive examination of LXplore's internal environment, LXplore presents many core offerings that set it apart from other competitors. Unlike traditional travel apps that may focus on a singular service or function, LXplore integrates a range of services and providers, requiring a thoughtful approach to partner selection and value delivery. In this section, the proposed features in the app will be defined, for both end users and listing business and partner. Next, will be the companies that LXplore intend to collaborate for listing in the platform. Additionally, a SWOT analysis is conducted to highlight the internal factors that can drive the app's success or hinder its growth, ensuring a clear understanding of the app's strategic potential.

7.1. Features

After obtaining opinion from the questionnaire respondents regarding the user pattern and preference in chapter 4, here to present the lists of feature and functionalities that user may be interested in LXplore, with the possibility to be expanded or altered in the future.

Feature/Functionality	To End-Users	To Listing Business/Partner
Account Creation & Login	Create and manage personal accounts to save users preferences and favorite	Create and manage profiles, publish images, and contact details.
Listing	Browse and explore listings categories by services.	Being list their service by being directed to the app/website to increase visibility
Category Filter	Filter listings by searching the category to quickly find relevant information.	Categorize their listings to target the right segments of users
Geolocation	Users can base on their location to find nearby services relative to their current location.	Easier to target users based on their location
Insights and Reports	N/A	Businesses receive insights and reports on user interactions, and

		choose the segment of target customer to put ads.

Table 7.1: LXplore features

Source: Author

7.2. Client

The primary end-users of this application will be segmented to 18 to 45 year old tourists who rely on mobile applications during their journey in Lisbon. This demographic is highly active in using digital tools for travel planning, navigation, and desire to enhancing their overall travel experience. The application will be free of charge, users can access most app functionalities without paying. However, users can also subscribe to a premium version for additional features and benefits while providing opportunities for monetization for the business.

The secondary clients of LXplore will be the partner companies that offer services facilitating tourists' journey. These partner companies gain benefit from increased visibility and get higher exposure to their own targeted segment. In the process of selecting collaborator businesses, LXplore prioritizes those that provide tourist service and address tourists' needs while adhering to smart tourism principles proposed by the European Union. These principles - Accessibility, Sustainability, Digitalisation, and Creativity and Cultural Heritage - serve as the foundation for LXplore's selection strategy.

Additionally, listing app/websites will be organized into service categories, as outlined in Table 2. All the intended collaboration, are mainly categories by service they provide, Food & Drink, Transport and Mobility, Assesibilty for reduced mobilities, Tourist Information & Activities, Local Culture, Essential Service, Language & Communication. Within each category, a selection base on relevancy to these smart tourism principles. This strategy provides a clear framework for identifying the types of businesses suitable for listing.

Name	Service	Category	Sub category
Yelp, The Fork, Zomato, Too Good to go, Mygon, HappyCow	Food & Drink	Restaurants review/suggestion	-
Glovo, Uber Eats, Bolt food		Food delivery service	-
Carris			Bus

CP	Transport and Mobility	Public Transport	Train
Gira, Lime			Trotinete
Metro de Lisboa			Metro
Taxi Link/Uber/Bolt			Taxi/Share ride
Moovit/ City mapper		Navigation	Public transportation map
Europcar/ Rentalcars		Car rental	-
City as a platform Wheelmap Be my eyes	Accessibility	People with disability	-
Lisboa 24 Visit Lisboa Viator (walking tours, boattours, etc.)	Tourist Information & Activities	Tours	
Info Praia		Beaches Information	
Lisboa Secreta Fever (Web)	Local Culture	Cultural events	
Kuanto Kusta (Web) XE Currency	Essential Service	Average price indicator Currency converter	
Farmácias Portuguesas		Pharmacy Location	
Poop advisor		Public/privatetoilet	

Wifi map/ wifi finder		Wifi Location	
Bounce		Luggage storage	
Portuguese language with Lengo Translator	Language & Communication		Language learning Translator

Table 7.2: LXplore listing companies

Source: Author

7.3. Supplier

As the nature of LXplore is a directory platform, its core 'product/service' offered are provided by listing companies, the primary suppliers will be content providers, including companies that wish to collaborate and feature their services within the application. These partnerships will not only enrich the app's content but also offer the partnering companies with an opportunity to reach a larger audience of tourists. However, the real suppliers for LXplore will be the technology company that provide the necessary tools and resource for LXplore to operate smoothly. In specific, the technical support and maintenance assistance company, cloud storage company etc.

7.4. Competitors

Icon	App Name	Classification	Pricing	Last Update
	Lisboa 24	Information	Free	13/09/2022
	Walkbox Roteiros Autoguiados	Travel Audio guide	Freemium /Premium 6,99 € per week	06/04/2024

	Lisboa Guia de Viagem	Travel guide	Freemium /Premium feature 3,99 €	26/02/2024
	Lisbon Travel Guide and Map	Travel guide	Free	28/07/2021
	Portugal Tourist Attractions	Travel guide	Free	22/02/2024
	Portugal Finest	Travel guide	Free	25/02/2022
	SmartGuide travel guide & map	Travel Audio guide	Free/Offers In-App Purchases	17/05/2024
	City transport map Lisbon	Transportaion App	Free/ Offers In-App Purchases	03/05/2023

civitatis	Lisbon Guide by Civitatis	Travel guide	Free	26/08/2023

Table 7.3: LXplore indirect competitors

Source: author

7.5. SWOT Analysis

Strength	Weakness
• No existing application in the market • Free of charge for end-users • No physical stock needed • Innovative and comprehensive solution • Tailor-made for Lisbon • Strategic partnerships with local businesses • Solution for user's pain point • Seamless integration of apps/websites • Expansion into the smart tourism application market	• Reliance on partner companies for listings. • Limited financial resources during the early stages. • Low brand awareness at launch. • Saturated market for travel apps. • Dependence on advertising for revenue generation. • Competition from travel information on social media platforms. • Weak user retention
Opportunity	**Threat**
• Growing number of tourist in Lisbon • Increasing demand for digital solutions	• User loyalty to different app • Technological changes • The risk of the low collaborator • Bad service from supplier • Emergence of new platforms

• Potential for expansion to other countries • Strategic partnerships and collaborations with authorities • Rising importance to smart tourism • Public's increasing dependence on smart technology • Possibility of extending use to residents	

Table 7.4: SWOT analysis

Source: Author

After identifying the internal factors of strengths and weaknesses, as well as the external factors of opportunities and threats, it is crucial to develop strategic solutions to address the company's weaknesses. The following analysis also shows the level of urgency base on the potential threat that specific weakness may bring to the business, and ensuring that actions are taken within an expected implementation timeframe to increase the sustainability of the business in the long term.

Weakness	**Improvement Proposal**	**Priority**	**Implementation Time in**
Reliance on partner companies for listings.	Search for alternatives affiliated product, could expand the product categories	Medium	3-6 months
Lack of financial resources in the beginning phase	Seek for collaboration with governmental institution Search for investor/Incubate fund	High	1-3 months
Weak brand recognition	Actively participating physical tourism events, branding and visibility initiatives	Medium	3-6 months

Saturated market for travel apps.	Differentiate by offering unique features or exclusive deals with local businesses and partnering with authorities to maintain the credibility	Low	6-12 months
Competition from travel information on social media platforms.	Invest on social media ads, build a strong all-in-one branding, solve the pain point for user of getting info from social media	Medium	3-6 months
Weak user retention	Develop features that encourage repeat usage. Explore the opportunity to tailor for residents.	Low	12+ months

Table 7.5: WIPPIT analysis

Source: Author

8. CHAPTER 8 Development Strategy

8.1. Mission and vision

Mission

LXplore's company mission is to enhance the tourist experience in Lisbon by providing a comprehensive, user-friendly information aggregation app that connects tourists with essential services and information by redirecting them to each entities' application/website. We aim to bridge the gap between technology and tourism, ensuring that all visitors can explore and enrich their Lisbon trip, thus can bring Lisbon to become a smarter city.

Vision

Our vision is to transform Lisbon into a model smart tourism destination, where technological innovation and cultural richness coexist to offer an unparalleled travel experience. We strive to make Lisbon a top destination for international tourists by integrating advanced digital solutions that promote accessibility, sustainability, and digitalisation. We envision expanding this business model into other European countries.

8.2. Company Goal

Setting clear objectives for a company can allow a definition of the correct path to obtain those goals. For LXplore, there are goals that are time frame defined, with its respective importance. In terms of company strategic development goal, there will be:

- Long term goals (in five years): Expand to another city in Portugal e.g Porto, Coimbra
- Middle term goals (in two to five years): Achieve a 50% market share in the Lisbon travel directory app industry, and have partnerships with 60% of local businesses and tourist services.
- Short term goals (in one to two years): Reach 10,000 users downloads from iOS and Google Play.

9. CHAPTER 9 Implementation Plan

9.1. Marketing Mix 4P/7P

9.1.1. Product

LXplore is an all-in-one directory platform specifically design for tourists visiting Lisbon, providing all the necessary service in Lisbon. Name of the product: LXplore, the name is combining the word Lixboa and Explore, therefore, with the abbreviation of LX the location of the application can be easily identified. The core offerings to end-user of LXplore are to consolidate information of necessary mobile apps/website for all the possible needed service in Lisbon, applications will be divided by different categories and the nature of the service they are offering.

Figure 9.1: LXplore logo

Source: Author

9.1.2. Price

The pricing strategy of LXplore will be a completely free for end-user, in other words, public will not need to pay to enjoy the features. This pricing strategy can maximize accessibility by removes any barrier for user to try, allowing a larger audience to download and use LXplore. The pricing strategy also helps position LXplore as an innovative and accessible solution in this travel tech market. A free app can encourage regular usage and user engagement so that increase loyalty.

However, in order to maintain a steady revenue stream, LXplore will have three main ways to generate revenue. The primary revenue is charging a listing fee for company who wish to be listed in the app. However, since LXplore is a start-up without any brand recognition in the initial phrase, the listing fees will be set at a competitive rate to attract businesses. In addition to the base listing fee, a commission fee will be charged based on the number of clicks to their

app and website, this monetization model, avoid imposing a high initial cost on listing businesses.

Secondly, businesses can have the option to be featured or sponsored listings ensures their visibility and ranking by paying an extra subscription to appear at the top of search results. Companies opting for this service will pay an additional feature listing fee, allowing them to stand out from competitors and increase their exposure to potential customers.

The third revenue stream of LXplore is in-app advertising, companies, including businesses that may not be directly listed in LXplore, but will have the opportunity to reach LXplore's user base through targeted ads. In order not to interrupt the user experience, banner ads option will be chosen in LXplore. And the pricing strategy for these ads are Cost per Mille (CPM). Where companies are charged based on the number of impressions their ads receive, ensuring a scalable and transparent pricing structure. For normal listing price, will be €400 annually with extra €200 can upgrade to featured listing price. For in-app advertisement, the cost per thousand impressions will be €3.

Item	Price
Listing Price Annual	€400
Featured Listing Price	€600
In-app Advertisement (Cost per thousand impressions)	€3

Table 9.1: LXplore listing pricing 2025

Source: Author

9.1.3. Promotion

The promotion strategy of LXplore is to create a branding image of the exclusive app tourists need when traveling in Lisbon. Due to the specific nature of the LXplore, its promotion must be carried out on a large scale to reach tourist from all the Europe. Physical promotion will involve participation in tourism sector events such as Lisbon international fairs FIL, exhibitions and conferences regarding smart city or smart tourism. By engaging with these events, LXplore can directly reach its target audience, in this case, will be the listing companies and establish a strong presence within the tourism industry.

Secondly, LXplore will try to seek for collaboration in governmental institutions, such as Turismo de Portugal, Turismo de Lisboa Visitors & Convention Bureau. These collaborations will be take place in both physical marketing materials, such as distributing leaflets and booklets

in tourist information centers—and digital promotions through their official websites. Another key collaboration will be with Tomi, a smart interactive machine located at more than 20 metro stations in Lisbon. Tomi offers interactive tourist information with different categories, by collaborating with Tomi, it will ensure a wide reach of tourists who pass by these key metro stations.

Digital promotion will be a critical component of the marketing strategy, social media marketing, LinkedIn, Twitter, Facebook and Instagram, and Tiktok as they are some of the most powerful marketing tools nowadays. LXplore will be mainly pay for advertisement on Instagram, and the main advantage of this advertisement is able to choose target audience base on their demographic (Age, gender, location). LinkedIn and Twitter will focus on the professional side of the company, presenting company updates and seeking collaborations or sponsorships from public and private entities. Instagram and Tiktok, which are the most powerful media targeting teenagers to adults, creating engaging content about the application and Lisbon's.

Another method of promoting the mobile application is advertising it through established platforms. For example, Timeout, which offers many exclusive information for both tourists and residents, users follow this platform to obtain the most update event information or restaurant recommendation. Additionally, travel influencers who are active on both Instagram and YouTube, will play an important role in this regard. Their content has a chance to engage directly with the demographic most relevant to LXplore that is the most significant for the brand. Moreover, their trusted opinion has a great influence on the choice of their followers.

Marketing in search engine is also another important aspect, Google Ads is a very strong tool to get exposure of the app. Search ads and display ads will be the mainly two types of ads LXplore is going to invest. Search ads will be place throughout googles search results, with the keywords of "Lisbon travel app", "Lisbon travel directory", "Tourist information Lisbon" etc. For display Ads, it's important to place ads on relevant websites that attract target audiences, which in this case includes tourists who are planning trips to Lisbon.

9.1.4. Place

LXplore, as a digital service, is accessible globally, user can access to the service basically everywhere in the world as long as legal and technical condition allows. However, it is segmented for tourist to use it during their trip in Lisbon. As the market research shown in PEST analysis, Android devices dominant the Portuguese market, compared to 30.62% of Apple iOS devices users. Despite this, it is essential to offer LXplore on both platforms, as we cannot predict which device our target customers will use. Therefore, LXplore will be launched

as a cross-platform app on both the Apple iOS and Google Play app markets, ensuring that users can easily download and use it regardless of the location, as well as to potentially increase user numbers by catering to a broader audience in Lisbon.

9.2. Segmentation, Targeting and Positioning

LXplore primarily targets international tourists visiting Lisbon, particularly from Europe, North America, and emerging markets in Asia, as the market research showed on chapter 6. These regions account for a significant number of outbound tourists, with a high tendency to visit. The age group of the primary end-user is 18-45 years old, as the questionnaire result showed, this segment consists travellers who are more likely to use digital tools for travel. This segment includes independent, experience-seeking travelers who prefer exploring Lisbon at their own pace. That is why LXplore can offer guidance to travel without having too much intervention on the recommendation.

LXplore position itself as the go-to app for tourists in Lisbon, providing a one-stop solution for all travel-related needs. In alignment with the value proposition framework (Kotler & Keller, 2016), there are various positioning strategies, including more-for-more, more-for-the-same, the same-for-less, less-for-much-less, and more-for-less. LXplore falls on the position of more-for-less positioning, by being free, LXplore eliminates the financial barrier for users, by providing a directory of tourist services and information at no cost.

9.3. Persona scenario

Caroline, a 26 years old US tourist, first time coming to Lisbon for a 5 days trip. Upon her arrival at Lisbon airport, she saw an advertisement in the banner saying “LXplore your all in one directory app in Lisbon” Intrigued by the promise of a comprehensive and convenient travel tool she thinks it is perfect for her to try out since she did not do much research for this trip. She quickly finds the LXplore app on the App Store and, appreciating that it is free of charge, downloads it immediately. After creating an account using Google authentication, she entered the main page with all the recommendation app and events.

She goes to the search page, showing a list of services categorized by type. She chose Transport & Mobility, and click into “Metro de Lisboa”, an important notice about an out-of-service lift at the station showed in the Metro de Lisboa, therefore, she chose another entrance and successful take the elevator with her heavy luggage. Caroline goes to explore on the app, and see there is an exhibition info provided Museu de Lisboa, she loves exploring museum so she added Museu de Lisboa into her favourite.

Throughout her stay, LXplore proves to be an invaluable resource, offering Caroline real-time updates, tailored recommendations, and essential services all in one place. The app not only enhances her travel experience but also encourages her to explore more of what Lisbon has to offer.

9.4. Ansoff matrix

The Ansoff matrix is a strategic planning tool that provides a 2x2 framework to help defining strategies for future business growth (Ansoff, H. Igor, 1957). The four growth strategy outlined in this matrix are market penetration, market development, product development and diversification. As mentioned in company goals, LXplore hope to expand its market to Porto after having a mature business model developed. Therefore, this expansion would be in the category of as market development, that is bringing an existing product to a new market. However, the listings will need to be altered in order to fit the necessity for the user in Porto.

9.5. Resources

9.5.1. Organizational Resource

In order to minimize the cost for this project, the scale of LXplore will be small and only will hire employee for the most essential positions. LXplore as a small startup with limited initial capital, it's essential to cover the critical functions, yet to minimize the manpower. Therefore, in the early phase, the founder of LXplore may have to be responsible for different positions. In the beginning, core employees will be joining LXplore as full-time and be part of the company structure.

There are five essential departments needed in LXplore, including Operation, Technology, Financial, Marketing and Product management (See figure 2). The founder of LXplore will take up the position of the CEO (Chief Executive Officer), and will be responsible for the overall leadership and strategic direction. Also, founder will take up the role of business development manager, e.g. seek for investor and maintain good public relations, and pitch the possible partnerships company, and key decision-making.

LXplore is a mobile application company, so the technology department is the most crucial component in the company, therefore, more human resources will be distributed in it. Besides the three main full-time employees, which are Developer, UX/UI Designer, Back-end Developer, additional personnel, such as QA Engineer, which will be hired through outsourcing.

For the financial department, an accountant will be needed, to ensure financial health and compliance with tax regulations.

LXplore aim to invest relatively heavily on marketing, a marketing specialist is needed to build a strong brand recognition, to execute marketing strategies, manage advertising campaigns, handle public relations, and oversee customer engagement and market research. A SEO (search engine optimization) or ASO (App Store Optimization) specialist can ensure LXplore to be more discoverable to users when searching online and enhancing its visibility in app store search results with the correct keywords.

Last but not least, product managers oversee the whole process of the product development, from concept to launch, They work closely with cross-functional teams, particularly maintaining a strong connection with the technological department to ensure seamless integratio of features and innovation.

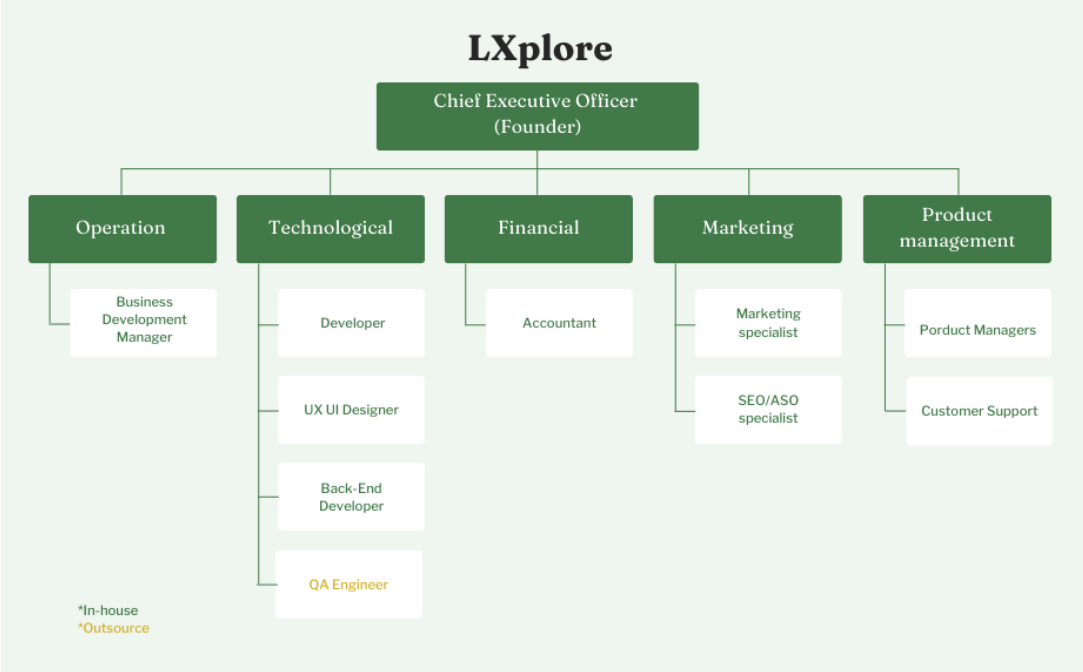


Figure 9.2: LXplore organizational structure

Source: Author

9.5.2. Business Canva

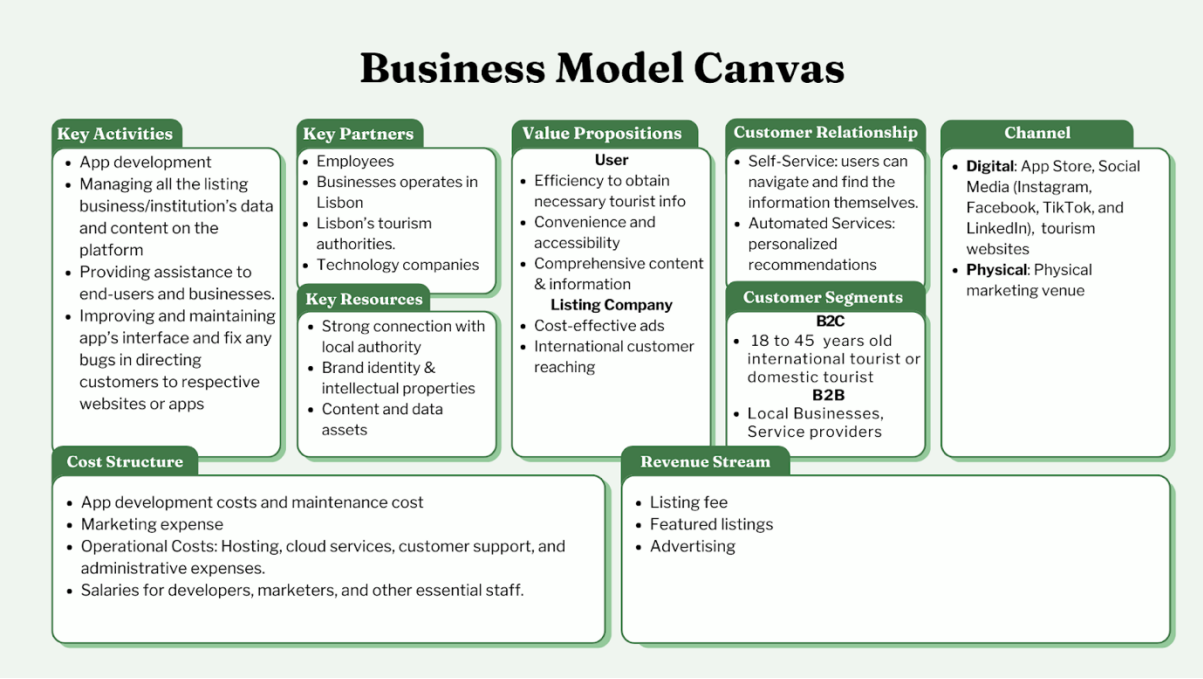


Figure 9.3: Business Canva

Source: Author

9.5.3. Financial Resource

Creating a company by an individual in Portugal has two legal forms, sole proprietor (*empresário em nome individual)* and single shareholder limited liability company (*sociedade unipessoal por quotas)* (eportugal, 2024). The initial capital for LXplore Lda will be €5,000 from personal fund. Portuguese government has launched many government grants and subsidies for startups, especially in innovation and technology aspect, namely, Tourism Advance, Vouchers for Startups – New Green and Digital Products, Programa FIT etc. LXplore is expected to apply for those which fit in the application requirement.

10. Chapter 10 Implementation Schedule

The implementation plan for LXplore is designed to be a whole year time frame, from beginning of the business until after post-launch phase. It is expected to start the business operation in January, and will be focusing on all the legal process with necessary documentation for the company registration. Subsequently, in the next two months, February and March will be about raising capital through presenting to investors, and applying for government grants.

In order to have an effective definition of the app ideas, the hiring process for core team members, particularly for app developers experts will be carried out in the early phase of the plan, in March. After recruiting the core members, a strategic meeting is needed to discuss the framework of business operating, including revenue strategies, product features, and company goals.

From April to June will be only focusing on product development, while at the same time build the contents for the listing. After developing the core functionalities of LXplore, the team will shift to develop the brand identity, content strategy, and digital marketing plans, so that it aligns with the marketing positioning of LXplore.

In July, a thorough financial review will be conducted, refining the budget and expense forecasts in preparation for the app's official launch. From August to October will be testing LXplore's beta version, to optimize the user-friendly interface and the official launch will be expected to launch in October, accompanied by a series of marketing campaign to promote the official app launch and publishing in social media.

In the final stage of project, the team will engage in post-launch improvement. This will involved fixing bugs, improve with the feedback from the public. The primary goal in this phase will be to enhance user retention and engagement, thereby expanding the app's user base and solidifying LXplore's position in the market.

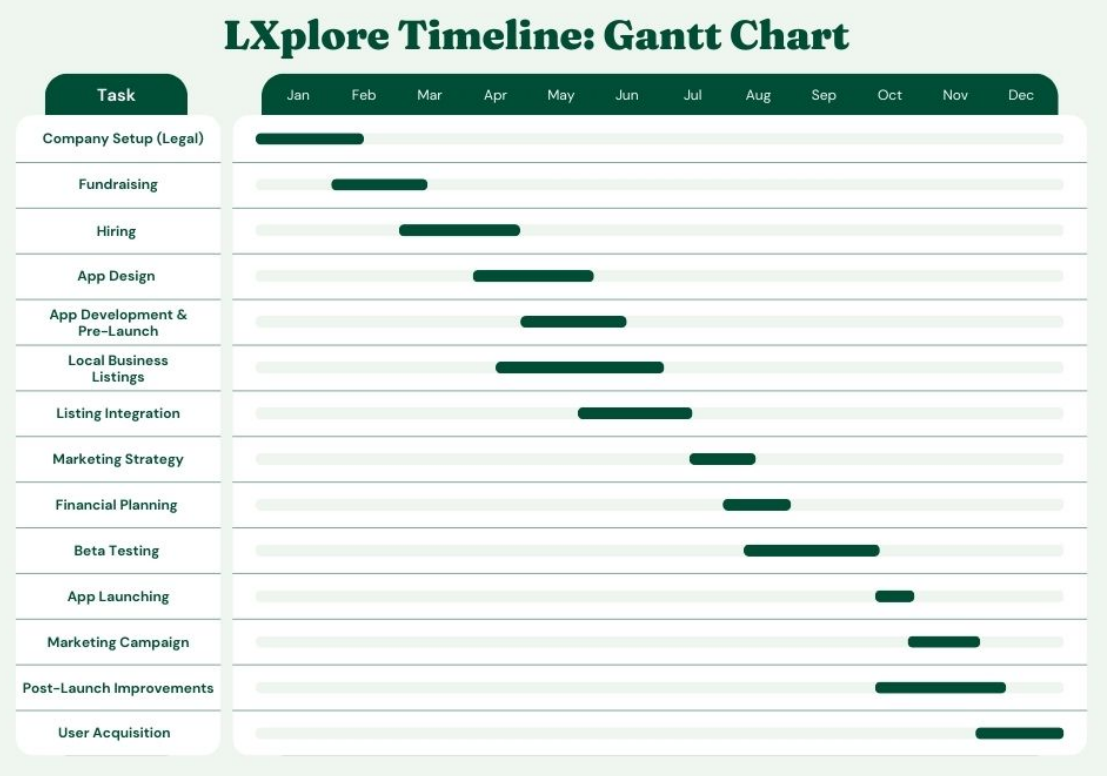


Figure 10.1: Gantt Chart

Source: Author

11. Chapter 11 Financial Evaluation

In order to test the financial feasibility of LXplore, a financial forecast will be carried out. In this section, revenue and cost forecast will be calculated for the following five years of period. All the numbers and information were obtained after carefully analyzing the average market price and cost of each element, and to obtain the most accurate possible value for LXplore.

11.1. CAPEX

The total CAPEX investment of €16,020 for LXplore covers essential fixed assets and technical expenses, including five MacBook Pros (€11,995) for core staffs, development tools will be IntelliJ IDEA (€1,000), design software will be Adobe Creative Cloud (€1,000), Google cloud storage (€2,000), and the Google Play platform fee (€25).

Given the fact that LXplore will not have a physical office, therefore, there will be no expense on initial investment for furniture. This investment is essential to ensuring efficient operations and scalability while maintaining cost-effectiveness. We believe these expenses are perfect for a well-rounded investment for long-term growth.

CAPEX investment cost

Fixed Asset	
MacBook Pro *5 (€2399 each)	11 995,00 €
Technical Expenses	
Development Tools and software (IntelliJ IDEA)	1 000,00 €
Design Software (Adobe Creative Cloud)	1 000,00 €
Servers/Cloud Storage (Google Cloud)	2 000,00 €
Google Play platform fee	25,00 €
Total	**16 020,00 €**

Table 11.1: LXplore CAPEX Investment Cost 2025-2029

Source: Author

11.2. Revenue Forecast

There will be three main revenue streams, from listing contracts, featured listings, in-app advertising, and commission from clicks. Annual listing price will be €400 with expected 40 listing company in 2025 and increasing to €500 by 2027 expecting more than 100 businesses listed, featured listing price will be €600 each and the feature listing companies is expecting to have half of the number of listing company, bring a revenue from listing 28,000 in 2025. For revenue from advertisement, given that tourist mobile app is in a rapid growing market, which go hands-in-hands with the growth of Lisbon's tourism. In 2023, there was 6,5 millions of international tourist visiting Lisbon, assuming 1% of the tourists downloaded LXplore, and half of them are actual users, the expected impression for in-app ads will be 195000 times with €3

cost per thousand impressions, resulting a €585 revenue in 2025 and €1660,93 in 2029. Lastly, revenue from clicks on advertisements expecting the average number of 2 clicks per user per day during their trips in Lisbon, with expected number of clicks on listing app and website, projecting a revenue at €58,500 in 2025. To conclude, LXplore has provided a steadily but potential growth in the first 5 years.

	Revenue Forecast				
Growth rate%	20,00%	40,00%	40,00%	30%	20,00%
Year	**2025**	**2026**	**2027**	**2028**	**2029**
Listing Contract Price Annual	400,00 €	400,00 €	500,00 €	500,00 €	500,00 €
Expected number of contract	40	48	67,2	94,08	122,304
Featured Listing	600,00 €	600,00 €	700,00 €	700,00 €	700,00 €
Expected number of contract (50% of listed company)	20	24	33,6	47,04	61,152
Revenue from listing	28 000,00 €	33 600,00 €	57 120,00 €	79 968,00 €	103 958,40 €
Expected nº of download	65000	78000	109200	152880	198744
In- App Advertisement (Cost per thousand impressions)	3,00 €	3,00 €	3,00 €	3,00 €	3,00 €
Expected Impression*	195000	234000	327600	458640	596232
Revenue from advertisment	585,00 €	702,00 €	982,80 €	1 375,92 €	1 788,70 €
Extra fee per click	0,30 €	0,30 €	0,50 €	0,50 €	0,50 €
Expected number of click*	195000	234000	327600	458640	596232
Revenue from commission	58 500,00 €	70 200,00 €	163 800,00 €	229 320,00 €	298 116,00 €
Total Revenue	**87 085,00 €**	**104 502,00 €**	**221 902,80 €**	**310 663,92 €**	**403 863,10 €**

Initial user base: *	65000
Adoption rate: 50% annually	50%
Average number of trips to Lisbon per year: 1	1
Average length of stay per trip: 3 days	3
Average sessions per day during trip: 1	1
Ad impressions per session: 1	1
Average click on listing app/website	2
Expected number of click	195000

Table 11.2: LXplore Revenue Forecast 2025-2029

Source: Author

11.3. Cost Expense

11.3.1. Cost of service

Cost for LXplore are divided as cost of service and operation cost. For cost of service, meaning the cost it takes to provide the service to customers. The cost of developing an app can be varied depends on the complexity of the app, LXplore as a directory app, the primary function is to direct user to an external apps or website, with little in-app interaction, therefore, in the initial phase, LXplore is a simple-to-moderate complexity app. LXplore including five to six features which was mentioned in chapter 7 And it will be operating in cross-platform with a monthly fee for publish in iOS App Store of €99 and in Google Play will be free of charge. For the UX/UI design, the idea for LXplore will be simple and user-friendly, but at the same time, it should be appealing enough to attract the retention for user. It is a server-side logic since there

is data storage in the server, as well as storing user profile information, but there will not be a complicated processing of data, with monthly fee of €100. In order to create a good service to customer, there will be a technical support and maintenance of LXplore of a monthly fee of €500. Therefore, the expected cost of service will be around €9488 with a reasonable increase perhaps in each year.

Cost of service

Year	2025	2026	2027	2028	2029
App Development Cost					
iOS Platform fee (€99 /mo)	€1 188,00	€1 188,00	€1 188,00	€1 188,00	€1 188,00
Server and cloud storage subscription (€100 /mo)	€1 200,00	€1 200,00	€1 200,00	€1 200,00	€1 200,00
Technical support and maintenance (€50 /mo)	€600,00	€600,00	€600,00	€600,00	€600,00
Development software subscription	€500,00	€500,00	€500,00	€500,00	€500,00
Application Support and Maintenance Services (€500/mo)	€6 000,00	€6 000,00	€6 000,00	€6 000,00	€6 000,00
Cost of service	€9 488,00	€9 488,00	€9 488,00	€9 488,00	€9 488,00

Table 11.3: LXplore Cost of service forecast 2025-2029

Source: Author

11.4. Operational cost

The operational cost forecast for LXplore from 2025 to 2029 focuses on the key expenses required to maintain the business operation, the heaviest operational cost falls on the salaries for core technical roles includes apps engineer (€2,000), designer (€1,800), back-end developer (€1,900), marketing specialist (€1,800). Therefore, the total annual salary cost for the technical team is €90,000. In 2027 to 2029, it will expect a slight increase in salary to account for inflation, raising the annual total to €99,600.

Another significant cost for LXplore is marketing, the marketing strategy for LXplore includes both digital and physical marketing campaign, which are crucial for user acquisition and brand awareness. For digital marketing, starting with an annual budget of €20,000 in 2025 to 2027. As the LXplore gains traffic from the public, the budget will be lowered to €16,000 in 2028 and 2029, since LXplore will be already obtained some brand awareness and users. For physical marketing, such as promotional events and print advertising, are budgeted at €18,000 annually from 2025 to 2027. This budget is reduced to €10,000 for 2028 and 2029 as the app's online presence becomes more dominant. Therefore, the operational cost will started with €128,000 in the first two years, increased to €137,600 in 2027 and reduced to €125,600 in 2028 and 2029.

Operational Cost					
Year	2025	2026	2027	2028	2029
Salary					
Application engineer	€2 000,00	€2 000,00	€2 200,00	€2 200,00	€2 200,00
Designer	€1 800,00	€1 800,00	€2 000,00	€2 000,00	€2 000,00
Back-end developer	€1 900,00	€1 900,00	€2 100,00	€2 100,00	€2 100,00
Marketing specialist	€1 800,00	€1 800,00	€2 000,00	€2 000,00	€2 000,00
Annual Salary	€90 000,00	€90 000,00	€99 600,00	€99 600,00	€99 600,00
Advertising and marketing					
Ditigal marketing	20 000,00 €	20 000,00 €	20 000,00 €	16 000,00 €	16 000,00 €
Physical marketing	18 000,00 €	18 000,00 €	18 000,00 €	10 000,00 €	10 000,00 €
Markering Cost	38 000,00 €	38 000,00 €	38 000,00 €	26 000,00 €	26 000,00 €
Operational Cost	€128 000,00	€128 000,00	€137 600,00	€125 600,00	€125 600,00

Table 11.4: LXplore Operational Cost Salary 2025-2029

Source: Author

11.5. Profit and Loss

The revenue for LXplore shows significant growth over the five-year period. Starting with €87,085 in 2025, it rises to €375,015.73 in 2029. Overall, revenue increases by 330.73% over five years, reflecting strong expansion and market penetration. Gross profit mirrors the revenue growth, rising from €77,597 in 2025 to €365,527.73 in 2029. The cost of service remains constant at €9,488 per year, showing effective control over direct costs. As a result, gross margins improve, and profitability scales up in line with revenue.

The total operational costs rise from €128,000 in 2025 to €137,600 in 2027, before declining slightly to €125,600 in the final two years. In the initial two years, the company experiences negative EBITDA, with losses of €50,403 and €32,986 respectively. The depreciation expense arises from LXplore's only fixed asset, the MacBook. This asset will be depreciated over time, contributing to a recurring expense on the balance sheet, as it gradually loses value of €2,399 through its useful life of 5 years. Income tax will be 21% of the EBITDA also sees significant growth as profitability increases, starting with a negative value in the first two years (due to losses) and reaching €68,948.17 in 2029.

The company records net losses of €63,386.63 in 2025 and €42,312.06 in 2026 due to early-stage investments in growth and high operating costs, representing -72.79% and -40,49% of revenues, respectively. However, the business becomes profitable by 2027, achieving a net profit of €68,948.17, with a profit margin of 33.46%. By 2028 and 2029, profitability increases significantly, with net profits of €183,197.62 (63.51% profit margin) and €287,915.56 (76.77% profit margin).

Profit and Loss

Year	2025	2026	2027	2028	2029
Revenue					
Listing	28 000,00 €	33 600,00 €	53 040,00 €	74 256,00 €	96 532,80 €
Advertisment	585,00 €	702,00 €	912,60 €	1 277,64 €	1 660,93 €
Commission	58 500,00 €	70 200,00 €	152 100,00 €	212 940,00 €	276 822,00 €
	87 085,00 €	**104 502,00 €**	**206 052,60 €**	**288 473,64 €**	**375 015,73 €**
Cost of service	€9 488,00	€9 488,00	€9 488,00	€9 488,00	€9 488,00
Gross Profit	**77 597,00 €**	**95 014,00 €**	**196 564,60 €**	**278 985,64 €**	**365 527,73 €**
Operating Expenses:					
Application engineer	€2 000,00	€2 000,00	€2 200,00	€2 200,00	€2 200,00
Designer	€1 800,00	€1 800,00	€2 000,00	€2 000,00	€2 000,00
Back-end developer	€1 900,00	€1 900,00	€2 100,00	€2 100,00	€2 100,00
Marketing specialist	€1 800,00	€1 800,00	€2 000,00	€2 000,00	€2 000,00
Annual Salary	€90 000,00	€105 000,00	€116 200,00	€116 200,00	€116 200,00
Marketing Cost	€38 000,00	€38 000,00	€38 000,00	€26 000,00	€26 000,00
Operational Cost	**(128 000,00)**	**(143 000,00)**	**(154 200,00)**	**(142 200,00)**	**(142 200,00)**
EBITDA	(50 403,00)	(47 986,00)	42 364,60 €	136 785,64 €	223 327,73 €
Depreciation*	(2 399,00) €	(2 399,00) €	(2 399,00) €	(2 399,00) €	(2 399,00) €
Income Tax 21%	(10 584,63) €	(10 077,06) €	8 896,57	28 724,98 €	46 898,82 €
Net profit/ loss	(63 386,63) €	(60 462,06) €	48 862,17 €	163 111,62 €	267 827,56 €
Net profit/ loss %	-72,79%	-57,86%	23,71%	56,54%	71,42%

*Straightline method of 5 years

Table 11.5: LXplore Profit and Loss forecast 2025-2029

Source: Author

11.6. Conclusion

The financial projection of LXplore indicates a typical growth path for a startup: initial losses followed by profitability as the business scales. The steady increase in revenue, particularly from listings and commissions, combined with controlled costs, positions the business for long-term success. By 2029, the company achieves significant profitability, with a strong margin of 71.42%, signaling sustainable growth potential.

12. Chapter 12 Conclusion

This strategic business plan of LXplore—a comprehensive directory travel app for Lisbon—outlines a clear possibility in establishing this digital tool for Lisbon's smart tourism. Through a detailed market analysis and literature review, showing a significant necessity towards this tool, driven by the increasing reliance of tourists on technology to enhance their travel experiences. LXplore's goal is to build the bridge between existing technology solutions and tourism industry, being operated in a blue ocean market, where its competitors existing competitors are focusing on tourist attraction introduction, positioning LXplore in a niche within the tourism industry.

Returning to the starting question, the plan has identified the key features and functionalities required for LXplore to succeed in the market. Exploratory research has demonstrated that tourists prioritize a high value on having a user-friendly platform that provide essential information to tourist throughout their journey. This demand has aligned with the main value proposition of LXplore — providing tourists with comprehensive, up-to-date, easily access to travel service and information. The literature review further supports these findings, with research indicating a growing trend toward the use of digital platforms in tourism. Moreover, in the field of tourism applications study, there is a lack of data on app users and usage patterns, presenting a gap in research on the demand side of mobile apps and tourists' app usage (Birenboim et al., 2023), as well as from the user's perspective.

The high reliance of tourist on technology demonstrated in the questionnaire results, it is expected that LXplore can help better organize their trips, thus to improve the tourist satisfaction. Moreover, by implementing smart technological tools in Lisbon, it is expected for Lisbon to be a smarter city. Based on the questionnaire results and the exploratory research conducted, that LXplore has a strong potential for the market acceptance, the finding also suggests that even though digital platforms have been developed within the city, Lisbon's market has been lacking some digital tools for traveler to gather information easily.

As outlined at the beginning of this thesis, LXplore was designed with the goal of aligning its functionalities with the four key criterias proposed by the European Capital of Smart Tourism: Accessibility, Sustainability, Digitalisation, and Creativity and Cultural Heritage. Throughout the development process, LXplore has carefully followed these criterias, when selecting the listing companies, LXplore has focused on ensuring inclusivity, regardless of physical or informational accessibility, the multilingual layout, user-friendly navigation.

LXplore promotes sustainable tourism practices by including eco-friendly travel apps such as bike-sharing services and public transport options, it expected that LXplore can be expanded in the future to recommending green travel choices in Lisbon. Regarding digitalisation, LXplore is definitely a tool to promote smart technology, the app embraces advanced digital technologies, including AI-driven personalization and has the potential to collaborate to smart technology facilities and infrastructure. LXplore has also focus on providing tourists with comprehensive access to Lisbon's rich cultural heritage but also supports local businesses by making their services easily discoverable. The app enhances users' appreciation of the city's cultural offerings by delivering tailored recommendations for museums, historical sites, and local festival events.

The financial projections indicate a solid revenue growth in the first 5 years of business, with multiple income streams, including listing fees, in-app advertising, and premium featured listing. In terms of macro-context, tourism is one of the fastest boosting industry in Lisbon, with increasing tourist arrivals anticipated, and the free of charge business model of LXplore is attractive for new users.

In terms of the scalability of core value, LXplore aim to address the existing challenge that is not only be facing tourist in Lisbon, the strong value proposition of LXplore is adaptable to other cities, LXplore business model provides a solid foundation for expansion, particularly to other cities across Portugal. The presence of established local competitors may require LXplore to adopt a different strategy and align with the specific needs of the target audience.

Future developments can be focusing on expanding LXplore's features beyond being just a directory, or diversifies in product and service offer. This includes invest more to improve AI algorithms to better analyze user preferences, allowing a more personalized service, and also can leverage the new technology to provide Augmented Reality immersive and interactive services.

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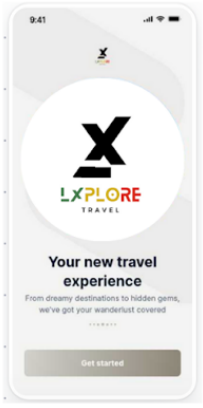
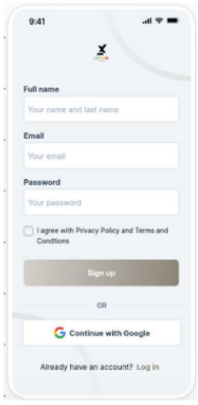
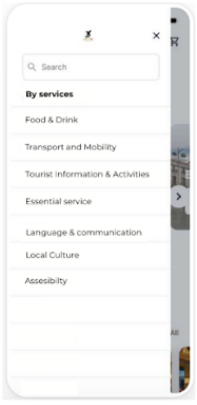
Annex A LXplore app mockup



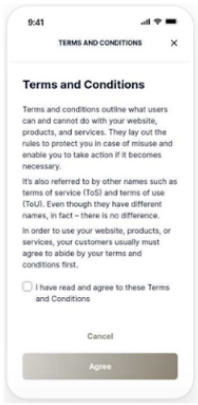
Splashing page



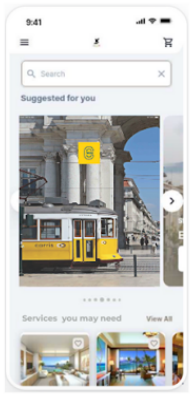
Log-in Page



Searching page



Terms & Condition



Recommendation

Annex B Explorative interview result

Questions

1. How would you evaluate Lisbon's tourism sector's current technological and digital infrastructure development?

The following questions can be used as guidelines:

- What are the existing problems for Lisbon's tourism sector?
- Are there specific pain points or challenges in the current travel experience?
- In your perspective, what is the most important aspect proposed by the European Union (*Accessibility, Sustainability, Digitalisation, Creativity, and Cultural Heritage*), and which aspect is the most lacking in Lisbon?

Evaluating Lisbon's tourism sector's current technological and digital infrastructure involves assessing several key aspects, including the integration of digital tools, the effectiveness of current technologies, and the potential for future enhancements.

A structured approach to evaluating and improving Lisbon's tourism tech infrastructure: implies an assessment of current infrastructure, from the extent of the digital presence (website and Apps, social media integration analysis), the implementations levels of smart technology (smart cities application and AR/VR augmentation strategies implemented, data utilization (analytics and target marketing uses), connectivity and accessibility (coverage and access).

Another important evaluation metric would be the identification of gaps and opportunities from tech innovation to user experience, but also, strong recommendations or commonly propused enhancements (digital platforms upgrades, AI, modernization, partnerships,)

By taking these steps, Lisboa can strengthen its position as a leading tourist destination through enhanced digital and technological infrastructure, providing a better experience for visitors.

2. How would you comment on the level of smart technology integration in the tourism sector in Lisbon?

The following questions can be used as guidelines:

- Does the government authority already integrate some smart technological infrastructure in Lisbon's tourism sector? Which?
- Are there plans or ongoing projects to enhance accessibility (either physical/informative) for tourists?

- To what extent, the enterprises in the tourism sector are open to integrating innovative technologies into their operations?
- Do you think based on the current situation of the Lisbon tourist market, it is worth it to invest more in technology?

Lisbon has made notable strides in integrating smart technology into its tourism sector, reflecting its commitment to becoming a smart(er) city. I would highlight currently the improvement in smart structure, the growth if digital services and platforms, the implementation of AR and VR at different levels of business and public sector, the still widespread high connectivity. I would point out as improvement areas essencially cross plataform integration, expand the AR & VR, continoous enhanced personalization of services, etc. By addressing these areas, Lisbon can further enhance its status as a smart city and provide an even more engaging and convenient experience for tourists.

Questions

1. How would you evaluate Lisbon's tourism sector's current technological and digital infrastructure development?

The following questions can be used as guidelines:

- What are the existing problems for Lisbon's tourism sector?
- Are there specific pain points or challenges in the current travel experience?
- In your perspective, what is the most important aspect proposed by the European Union (*Accessibility, Sustainability, Digitalisation, Creativity, and Cultural Heritage*), and which aspect is the most lacking in Lisbon?

Lisbon is becoming a very touristic centre and therefore its inhabitants are facing a growing stress with tourists.

The tuck-tucks are a true pandemia in Lisbon, mainly in the historical places as well as TVDE drivers who flooded Lisbon creating traffic problems.

The city, due to its transformation due to sustainable issues has permanent traffic jam and buses simply don´t work and they are not a real alternative for personal car.

The most historical places are too touristic and also the Local Accommodation has become a problem in Lisbon because its residents are losing their places to live due to tourism.

Lisbon is a quiet and historical city. However, it faces a huge problem concerning accessibility because we can say the city is not friendly and little has improved in this aspect. It is quite difficult for a disabled person to go around Lisbon.

2. How would you comment on the level of smart technology integration in the tourism sector in Lisbon?

The following questions can be used as guidelines:

- Does the government authority already integrate some smart technological infrastructure in Lisbon's tourism sector? Which?
- Are there plans or ongoing projects to enhance accessibility (either physical/informative) for tourists?
- To what extent, the enterprises in the tourism sector are open to integrating innovative technologies into their operations?
- Do you think based on the current situation of the Lisbon tourist market, it is worth it to invest more in technology?

Technology has improved quite a lot and almost any touristic entity has personal information on the internet or Apps.
People can know all the information on site, can buy tickets in advance and this is very useful.
However, it would be important to create APPs to help tourists to know if the places or museums or what else they want to see are or not overcrowded.

Questions

1. How would you evaluate Lisbon's tourism sector's current technological and digital infrastructure development?

The following questions can be used as guidelines:

- What are the existing problems for Lisbon's tourism sector?
- Are there specific pain points or challenges in the current travel experience?
- In your perspective, what is the most important aspect proposed by the European Union (*Accessibility, Sustainability, Digitalisation, Creativity, and Cultural Heritage*), and which aspect is the most lacking in Lisbon?
-

1. Avaliar o atual desenvolvimento das infraestruturas tecnológicas e digitais do setor turístico de Lisboa implica analisar aspetos que contribuem para a competitividade global da cidade enquanto destino inteligente. Lisboa oferece uma rede Wi-Fi pública em pontos turísticos, facilitando o acesso à informação para os visitantes embora isso já seja quase uma necessidade nos dias de hoje. A cidade também integrou soluções de mobilidade inteligente, como a Uber, Bolt, Via Verde e partilha de bicicletas Gira e outras, promovendo a sustentabilidade. Através da iniciativa Capital Europeia do Turismo Inteligente 2020, Lisboa destaca-se pela disponibilização de recursos digitais como mapas interativos, visitas virtuais e uma

app de turismo. O Turismo de Portugal tem tido um papel importante nestas iniciativas.

Aliás foi pioneiro no marketing digital e nas campanhas online para promover a cidade e outros destinos portugueses de forma eficaz, com uma presença significativa em redes sociais e sistemas de reservas bem integrados. Claro que a pandemia acelerou todo este processo de eventos virtuais, e Lisboa tem utilizado plataformas digitais para oferecer experiências locais a turistas internacionais.

Por outro lado, as aplicações móveis como a Lisboa Card e guias interativos são amplamente utilizados, e os museus adotaram ferramentas digitais para visitas virtuais e até mesmo em questões de segurança para os monumentos e contagem de turistas como é o caso dos parques de Sintra.

Além disso, chatbots baseados em IA otimizam o atendimento em hotéis melhorando a eficiência do serviço e restaurantes com alguns robots no serviço. A cidade também avançou no comércio eletrónico e pagamentos sem contacto para um rápido atendimento.

Lisboa tem experimentado tecnologias emergentes como a Realidade Aumentada e Virtual em museus e locais históricos. Além disso, a personalização com IA nas experiências turísticas está a crescer, permitindo que hotéis e agências de viagens adaptem recomendações de forma personalizada.

Mas as tecnologias digitais poderiam ser mais aproveitadas para gerir melhor o fluxo de turistas, especialmente em áreas sobre lotadas nos monumentos mais visitados, ajudando a promover a sustentabilidade.

Um dos maiores problemas é sempre a fragmentação dos sistemas e a falta de operacionalidade entre plataformas independentes que dificultam uma experiência única para os turistas. A partilha de dados em tempo real é limitada, dificultando a consulta de informações sobre transportes, alojamento e eventos culturais num único sistema. Existe sempre a falta de coordenação entre entidades públicas e privadas por questões mais políticas que outra coisa, seria importante uma estrutura centralizada que reunisse todos os stakeholders. Superar estes desafios requer maior cooperação, inovação tecnológica e um foco em soluções integradas para melhorar a experiência turística em Lisboa.

Lisboa tem feito avanços na sua infraestrutura digital, consolidando-se como um destino turístico inteligente, com oportunidades para melhorar a experiência dos visitantes.

2. How would you comment on the level of smart technology integration in the tourism sector in Lisbon?

The following questions can be used as guidelines:

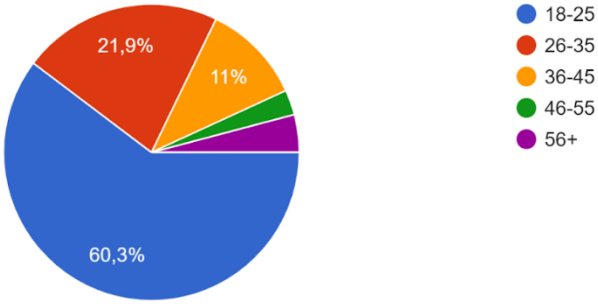
- Does the government authority already integrate some smart technological infrastructure in Lisbon's tourism sector? Which?
- Are there plans or ongoing projects to enhance accessibility (either physical/informative) for tourists?
- To what extent, the enterprises in the tourism sector are open to integrating innovative technologies into their operations?
- Do you think based on the current situation of the Lisbon tourist market, it is worth it to invest more in technology?

Apesar de achar que já aflorei alguns tópicos desta resposta em cima, reforço que o nível de integração de tecnologias inteligentes no turismo em Lisboa tem avançado, com o apoio governamental a implementar infraestruturas como redes de Wi-Fi públicas em áreas turísticas e a Lisboa Tourism App, que fornece informações em tempo real. Há também projetos em curso para melhorar a acessibilidade física e informativa dos turistas, incluindo a digitalização do património cultural através de visitas virtuais e realidade aumentada. As empresas do setor pelo que sei, mostram-se abertas à adoção de tecnologias inovadoras, como inteligência artificial para atendimento ao cliente embora estejamos a falar de uma indústria feita de pessoas para pessoas,. No entanto, toda esta utilização de tecnologias como a realidade aumentada e virtual ainda está em fase inicial no nosso País. Dada a crescente competitividade no mercado turístico global, investir em mais tecnologia é recomendável. A digitalização pode otimizar a experiência turística, melhorar a gestão de fluxos de visitantes e promover a sustentabilidade, consolidando a cidade como um destino de turismo inteligente.

Annex C Questionnaire result

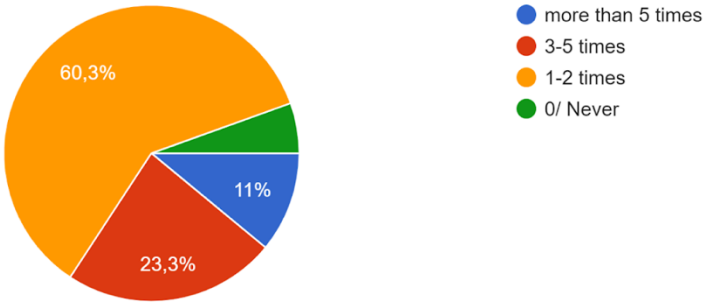
1. Age

73 respostas



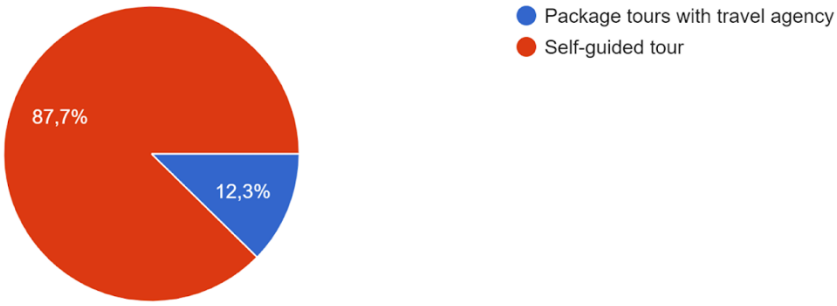
2. Regardless of the purpose of the trip, how many times in average do you travel to another country per year?

73 respostas



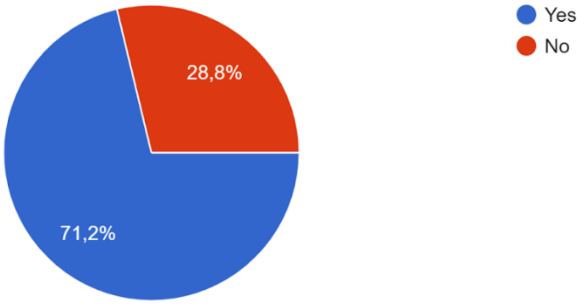
3. How do you typically arrange your travels?

73 respostas



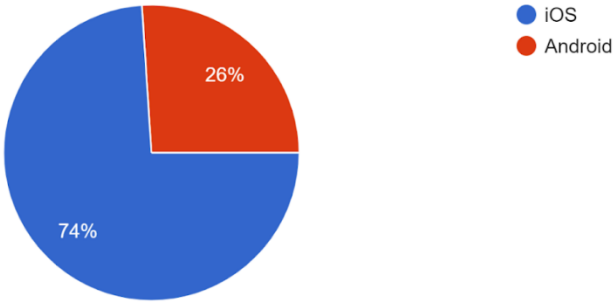
4. Have you been to Lisbon? (Either visiting or residing in Lisbon)

73 respostas



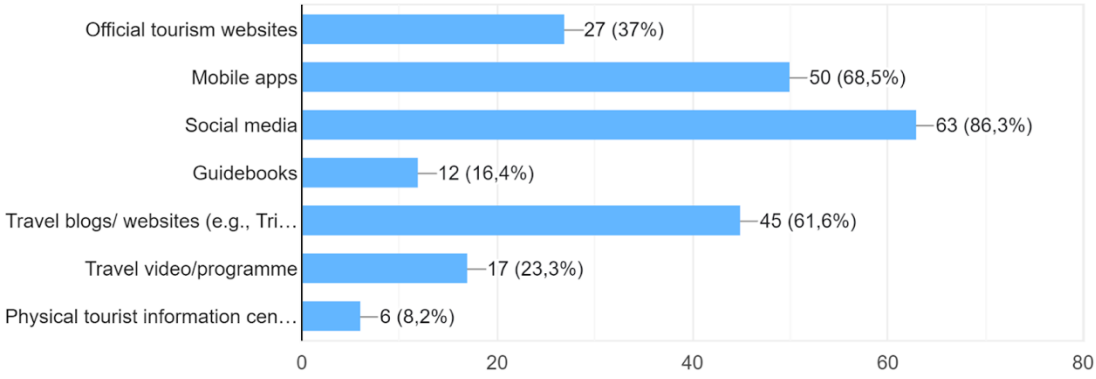
5. What mobile device you are using?

73 respostas



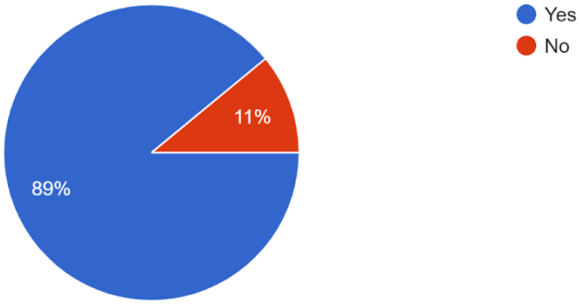
1. How do you access information when travelling? (Select all that apply)

73 respostas



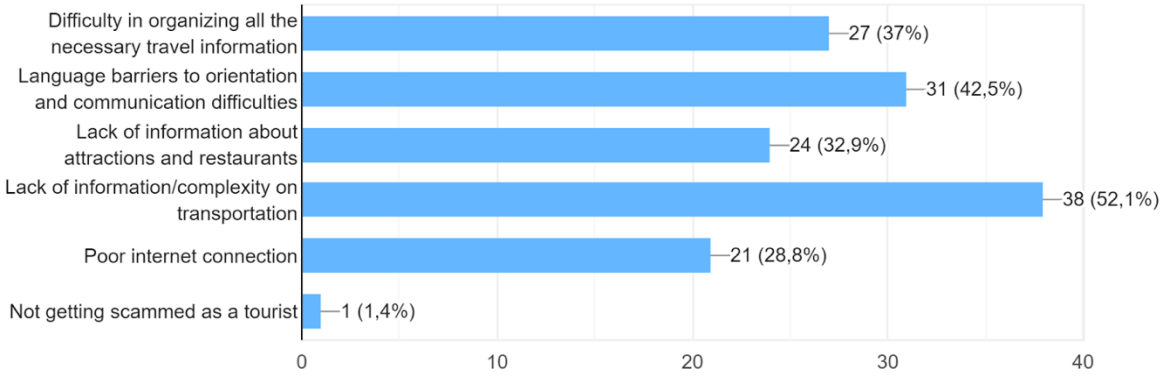
2. Have you used any apps of travel service during your recent travels or trips? (Accommodation booking, itinerary planner, food delivery or monument information app)

73 respostas



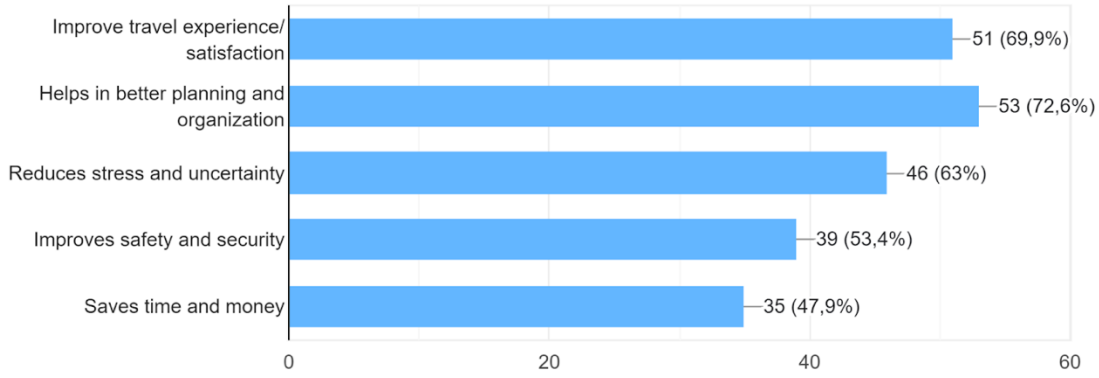
3. What are the most common challenges or frustrations you face when you travel to a new place? (Select all that apply)

73 respostas



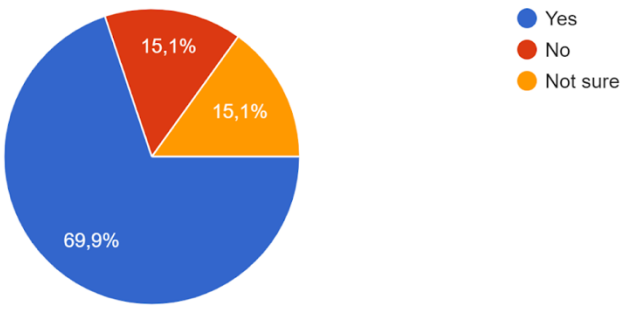
4. How does having access to accurate and comprehensive tourist information impact your travel experience? (Select all that apply)

73 respostas



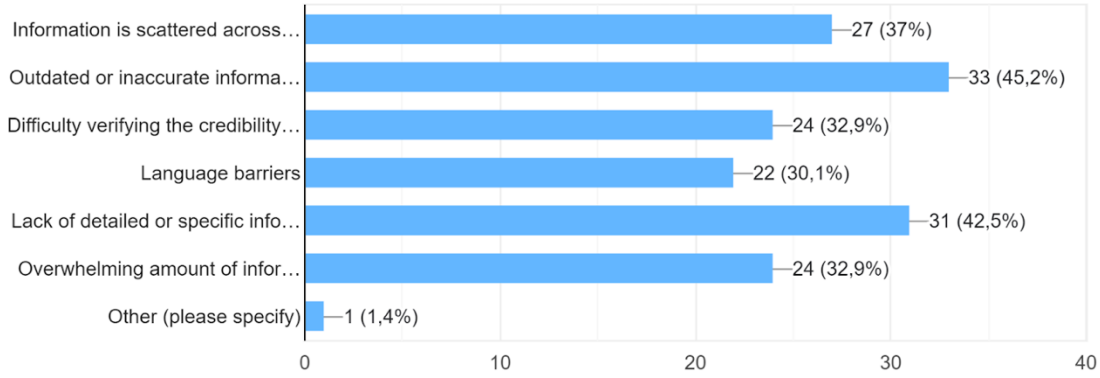
5. Have you ever traveled to a place where they use different local apps compared to those used in your country? Example: For ride-sharing app Uber is not used in a certain country/city

73 respostas



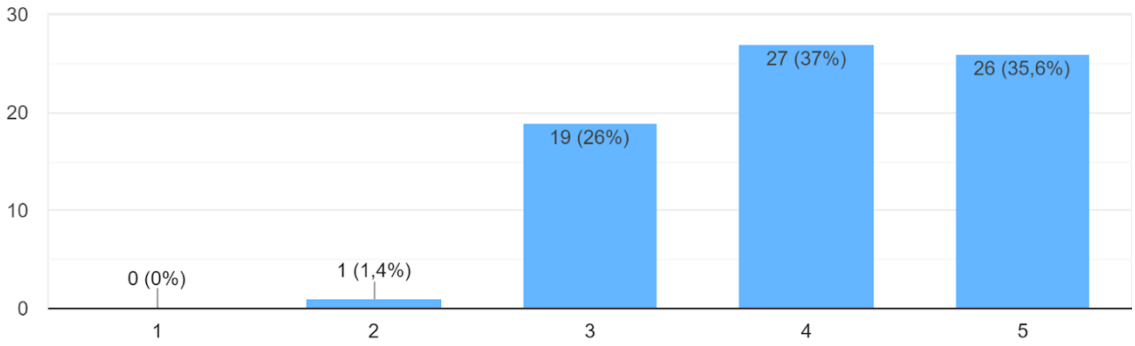
7. What are the main reasons you find it difficult to gather tourist information? (Select all that apply)

73 respostas



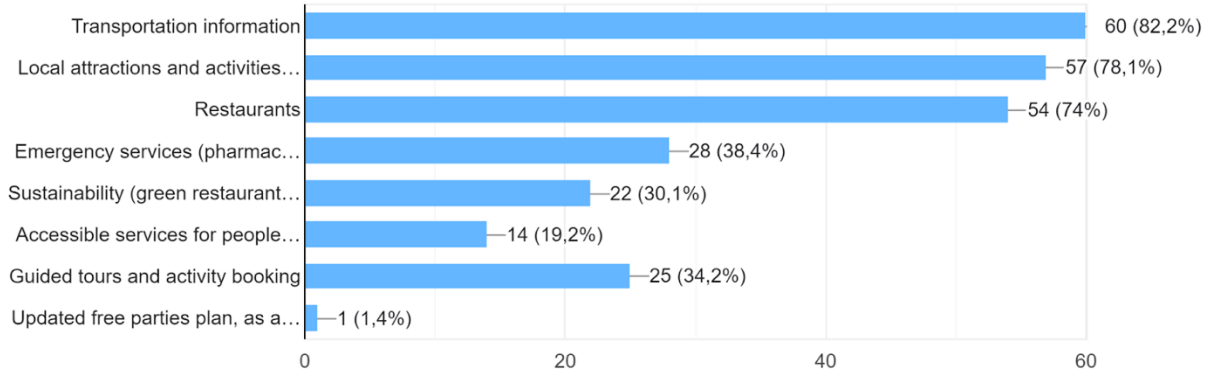
8. How would you rate your dependency to technology (searching information/ online service) when you are traveling?

73 respostas



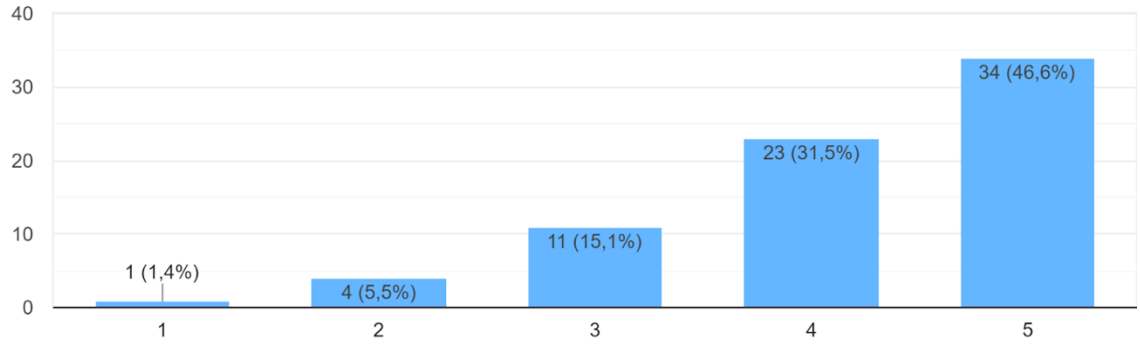
1. What specific list of apps or services included in the app would make you more willing to try the app? (Select all that apply)

73 respostas



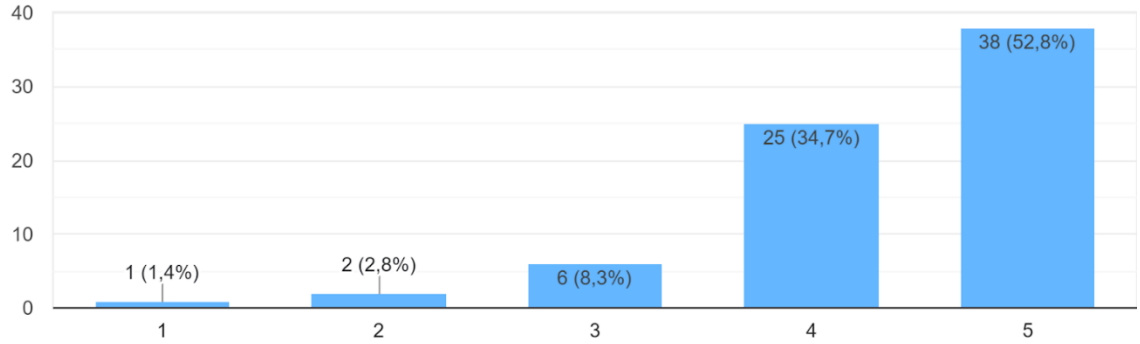
2. How interested would you be in trying out an all-in-one directory app that includes all the essential travel apps/website you need during a trip?

73 respostas



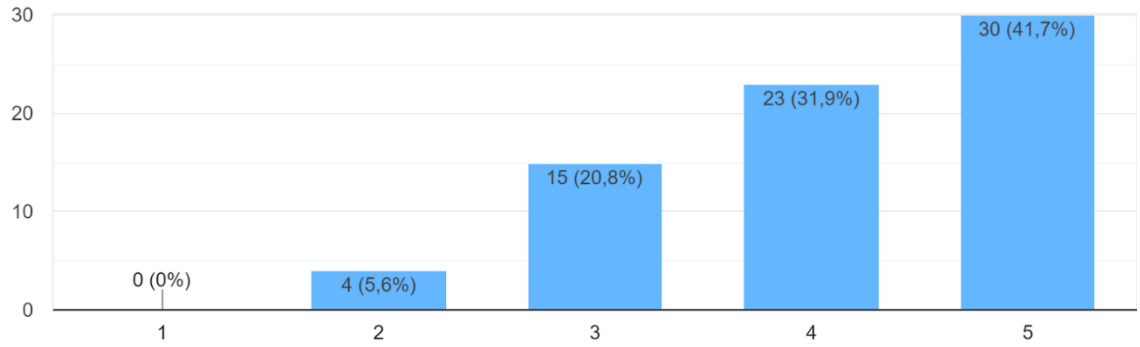
User-friendly interface

72 respostas



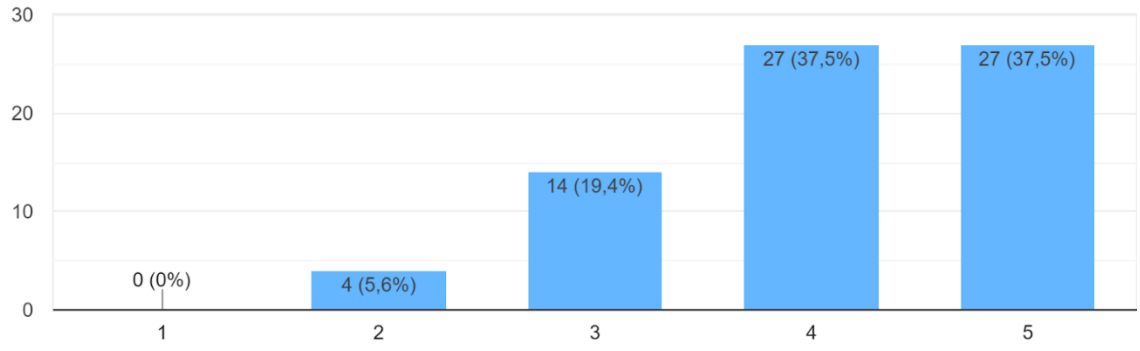
Customizable setting based on travel needs

72 respostas



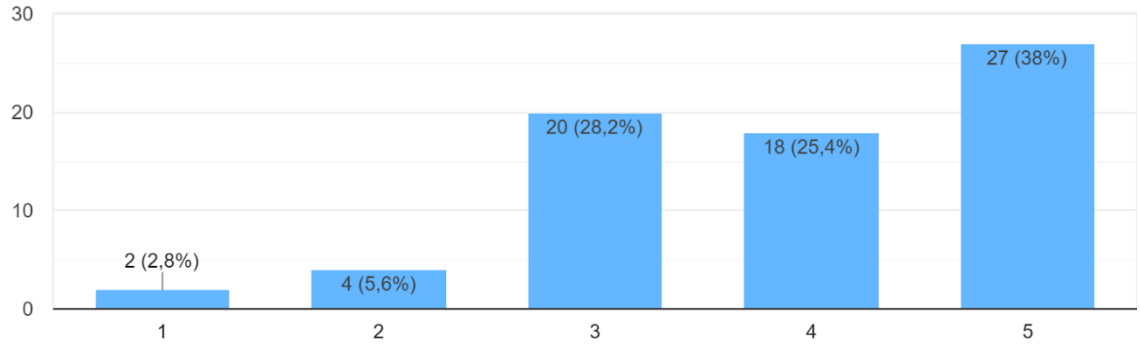
Comprehensive coverage of essential service/information travelling

72 respostas



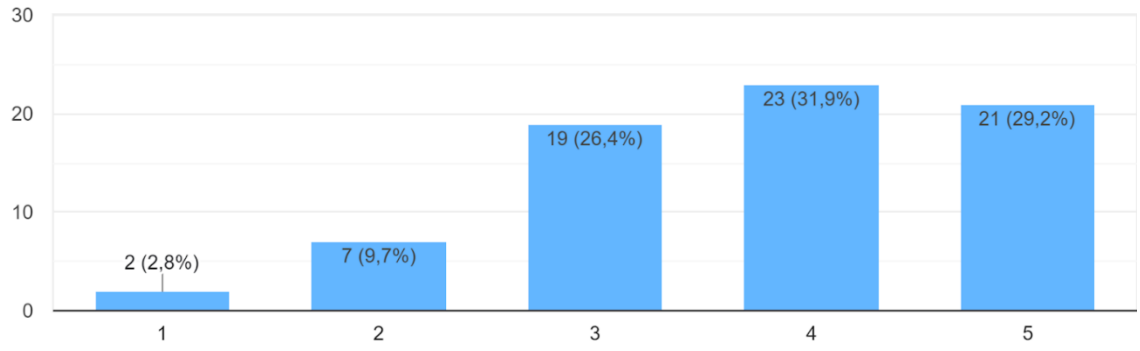
Multilingual support

71 respostas



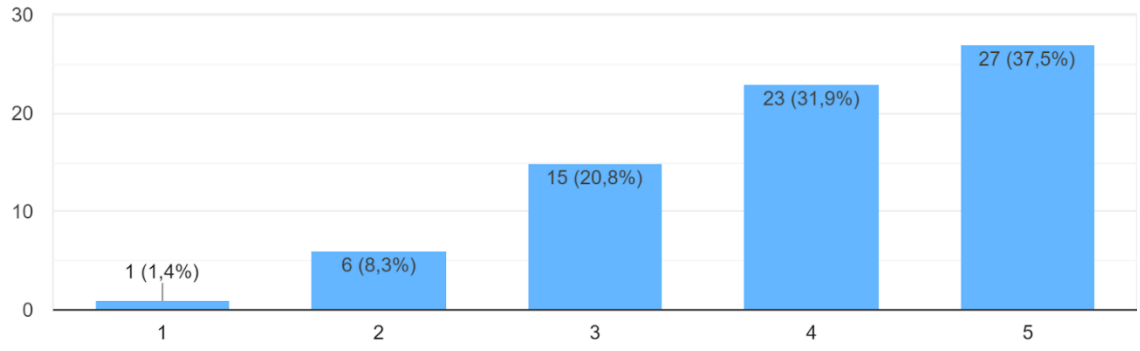
Customer support and assistance

72 respostas



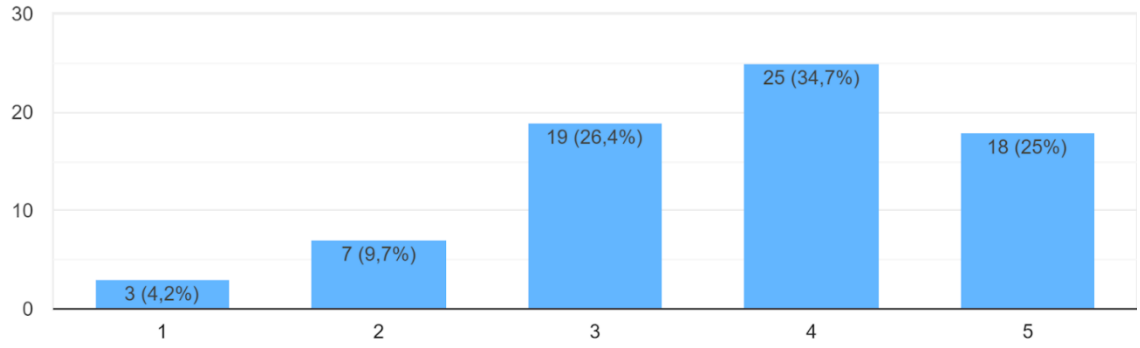
Regular updates and new features

72 respostas



Community forums and user feedback integration

72 respostas



If LXplore were to expand the market to other country, will you be interested?

73 respostas