



D6.1

## Market Models and Variables

2017-05-31

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This deliverable presents an analysis of the variables and market factors present in potential industries of product entry. It consists of an initial literature review, a quantitative and qualitative industry assessment, as well as a competitive analysis and business model study.



[www.crosscult.eu](http://www.crosscult.eu)

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## Abbreviations and Definitions

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Throughout the length of the report, multiple terms and definitions may be abbreviated after several uses for ease of reading. A list of such terms follows, in alphabetical order. Extended explanations regarding each term and its usage are located within the report.

**Compound Annual Growth Rate**, abbreviated as **CAGR** – The average rate of growth of a rate or value annually over a defined period of time.

**Cultural and Creative Industries**, abbreviated as **CCIs** – A segment of the economy that consists of cultural and creative oriented industries, such as visual arts, advertising, design, and gaming.

**Internet of Things**, abbreviated as **IoT** – A term referring to the new integration of technology into everyday items for the collection of data and increased efficiency of society.

**Serviceable Available Market**, abbreviated as **SAM** – The portion of an industry that is considered to be accessible for a product or company to obtain sales and market share. This can be a sector of the industry or geographical location.

**Software as a Service**, abbreviated as **SaaS** – A business model in which clients can access a portion of a software, or receive access to specific services of a platform.

**Total Available Market**, abbreviated as **TAM** – The total market value of a sector of the economy, regardless of geographic location or subsector.

## Executive Summary

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CrossCult is an innovative platform that aims to integrate technology with culture in order to allow organisations and individuals to interpret culture, heritage, and history through digital technology. In an evolving society in which technology continues to grow in prominence, CrossCult can reinvigorate the role of culture, and its accessibility, in the lives of all individuals. Throughout the development of the platform, it is essential to supplement technological and organisational findings with market analysis. The business development and market assessment strives to provide a clear depiction of the actors, variables, needs, and other factors present in the areas of the economy most relevant to the success of the CrossCult platform.

The market assessment is first supported through the collection of a wide variety of secondary sources, such as government publications, media reports, and relevant industry information. Through this initial review, the broad cultural sector of the economy is segmented into five prominent industries that are considered relevant for potential market entry: Cultural and Creative Industries, Cultural Tourism, Cultural Services, Education, and Smart Cities.

Upon identification of potential market industries, a thorough quantitative and qualitative analysis was conducted in order to gather further information regarding the strengths, opportunities, and weaknesses of each industry. The analysis considered factors such as market value, potential growth, and subsectors of interest. Research reveals that all industries provide various opportunities for expansion, and that there are particular subsectors considered more serviceable than others.

The market assessment also identified business models that are popular for technology-driven products and services, as well as within the industries of interest. In order to better understand the uses of such models, a competitive analysis reviewed prominent businesses in the market that provided similar services or functions to CrossCult. As technology grows in importance in modern society, products and services will attempt to evolve and satisfy the needs of organisations. The sizes of the industries studied ensure that there are numerous service providers and competitors in the market. However, while they may be similar in intention, CrossCult is unique in that it integrates multiple services in one functional and user-friendly platform. The competitive analysis illustrates that there are few existing platforms that can rival the broad potential usage of the CrossCult platform.

The findings of secondary research were complemented through primary sources, primarily a questionnaire of potential stakeholders, including organisations, businesses, and cultural institutions. The survey identified the needs of such organisations, in addition to their potential interest in CrossCult services. In conjunction with an analysis of market drivers and trends, the research provides a clear depiction of the concerns, needs, and problems present for stakeholders. Results indicate that there is indeed an interest amongst stakeholders with regards to services that enhance the experience of visitors and clients through personalisation, content visualisation, and the association and organisation of information. When combined with prominent market drivers such as the use of data, evolution of technology, and engagement with individuals, the potential impact of a technological platform that encompasses these areas is evident.

The market assessment reveals the complexities of the business environment, while also providing preliminary information as to the areas in which the platform can succeed. The findings of this report suggest that there exists interest in the services of CrossCult, and that the platform can establish itself as a unique service provider. As the development of the product continues, these findings will assist in the analysis of the optimal marketing strategies and business tactics for the platform.

# 1. Introduction

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## 1.1. Report Introduction and Goals

Europe has a shared history with a rich and diverse cultural heritage. This heritage is an asset that can be shared among all, yet provides each society with a unique identity. It is a shared interest that binds individuals and societies together, nurturing strong cultural connections in the present and creativity in the future. It is for these reasons that an effort must be made in order to preserve this heritage and diversity of cultural content.

The recent rise of digital technology and integration of mobile applications and IT tools in social institutions has highlighted the intricate network of challenges that organisations must confront. With this new, complex, and evolving world, an encompassing technology can assist organisations in the achievement of their goals and facilitate their management of operations.

From cultural museums, to education associations, to public sector service providers, there appears to be an opportunity for a technological platform that can integrate services such as content creation and client management in an innovative and creative manner.

The goal of this market study is to define market conditions, opportunities, and possible threats that should be considered when designing a business model and marketing strategy for the CrossCult platform. CrossCult is an innovative technological platform that will allow for cultural institutions, organisations, businesses, and other actors to easily integrate technology with history. In order to ensure the success of the product, this report will complete a thorough analysis of the market environment, including research of industries, geographic markets, and other situational factors. This market study is comprised of three separate deliverables, completed at different intervals throughout the development of the platform, as follows:

- **D6.1 Market Models and Variables:** *Completion Date* - May 2017
- **D6.2 Business and Product Models:** *Completion Date* - February 2019
- **D6.3 Marketing Tactics and Sustainability:** *Completion Date* – February 2019

In order to better explore a complex industry, the first deliverable has been further subdivided into five smaller sections. These sections permit the organisation of information collected, with each phase supporting the next such that all findings can contribute to the overall success of the project. The five phases are as follows:

- **PHASE I : PRELIMINARY RESEARCH** – This phase focuses on the collection of sources of data, an organisation of potential industries and markets, and introductions into the market study
- **PHASE II: EXPLORATORY ASSESSMENT** – The exploration phase consists of an extensive valuation of the geographical markets and industry segments that appear ready for the CrossCult platform
- **PHASE III: MARKET ENVIRONMENT ANALYSIS** – This phase is comprised of initial research into potential business models, followed by a competitive analysis in order to understand the operations of established actors in the market.

- **PHASE IV: STAKEHOLDER EVALUATION-** This phase focuses on the use of primary research, with the support of secondary information, in order to fully narrow the needs and drivers of organisations, institutions, and businesses in each industry with relation to the CrossCult platform.
- **PHASE V: ANALYSIS AND CONCLUSIONS** –An analysis of the first four phases will present the information necessary for the development of business models and marketing strategies in the latter deliverables.

## 1.2. CrossCult Technologies

The CrossCult platform is a complex software comprised of several modules in back-end hosts. In order to better understand the integration of the application with the potential sectors discussed later in the market assessment, a brief summary follows. Each module requires an advanced knowledge of technology and particular subject matter, such as data analysis. The information required in each module can also vary depending on the sector of entry, as such, a proper understanding of the market is essential

**Module 1 – The storage and organisation of cultural resources:** The complexity of cultural information makes it essential for a single, central, and comprehensive organisation scheme. Information and resources will be gathered, through multiple methods, and technologies in ontology and mapping will permit the dissemination of the information to the front-end user platform.

**Module 2 – User modelling, recommendation, and personalisation:** With the support of information gathered regarding the user, such as favourite subjects and preferred themes, the platform will develop suggestions and recommendations, and customise a guide or path for the user to follow.

**Module 3 – Machine learning, semantic reasoning, and crowdsourcing:** The information gathered through module one will be processed and the application will search for unforeseen associations or links between content, such as an individual or event in history. Individuals will also have the ability to provide information or feedback.

**Module 4 – Context mining and processing:** The technology will try to use context tools, such as location, weather, current events, and so forth, to maximize the value of the information delivered to users.

**Module 5 – Visualisation of associations & micro-aggressions:** This module is responsible for associating images, tables, graphs, or other stimuli with the appropriate content.

**Module 6 – Sporadic social networks back-end:** This module encourages interactions between users of the platform and new connections between content and individuals

**Module 7 – Crowd management & trajectory mining:** Working in conjunction with the module of route recommendations, this module intends to analyse data in a space, environment, time, and knowledge within an institution to effectively manage the flow and foot traffic of individuals

**Module 8 – Geo-localization & sensor data processing:** In order to provide accurate information and sufficient services, CrossCult will use GPS, WIFI, and Bluetooth technology to connect the user of the platform with his or her surroundings.



## 2. Phase I: Preliminary Research

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### 2.1. Introduction to the Preliminary Research Phase

The initial stages in the development of a product or strategy plan are often filled with uncertainties and unanswered questions. A lack of structure, supportive knowledge, and a foundation of information can ensure that an advanced and nuanced strategy is difficult to create. The complexities of project development, such as the collection of quantitative data and analysis of qualitative information, present challenges throughout the research process. However, such problems can be mitigated through careful organisation and research. The use of an extensive and varied base of information can facilitate the successful completion of a research projection, while eliminating uncertainties.

Prior to the commencement of thorough research and analysis for the CrossCult platform, an initial examination of secondary sources and industry information will be completed. This review, in combination with the identification of important organisational elements of the report and initial analysis, will establish the necessary foundation for the business analysis.

### 2.2. Objectives of the Preliminary Research Phase

This phase aims to set the basis for the research in the following sections of the report. Based on the preconceived knowledge and conceptions of the CrossCult platform, keywords will be used in order to gather information regarding the largest sector segments and industries that are applicable for the CrossCult platform. Likewise, data sources for various European markets, coupled with general information about digital culture and technology will be provided in order to support research throughout the completion of the report. This phase also aims to identify key questions and findings that can contribute to the success of research.

To truly understand the market for the CrossCult platform, several key questions must be answered, and are identified below. These questions are guides for the content and direction of the project.

- What function does the product satisfy?
- Which sectors and industries related to the product can be identified? Do these sectors consist of smaller segments? Do they overlap at all?
- What is the economic value and growth potential of each industry? Are there other important factors to consider?
- Do these industries perform better in certain geographical markets?
- Based on this data and information, which markets and industries should be prioritized?
- Is there a business model that appears to best align with the services and goals of the CrossCult project?
- How can CrossCult appropriately satisfy the needs of organisations and businesses, and sustain a competitive advantage in the market?

### 2.2.1. Purpose and Keyword Identification

The information search served aimed to collect a variety of sources and databases that could be used for the qualitative and quantitative analysis of information relevant to the CrossCult project. The collection of secondary sources, such as government and media publication, databases, or industry and organisational information, facilitates the analysis of the market and development of a business strategy.

Additional purposes included the identification of defined market sectors that potentially aligned with the goals of the CrossCult technologies.

In order to collect a variety of perspectives and sources, multiple keywords were identified based on knowledge of the CrossCult platform, as well as previous knowledge of the market. These keywords are based on services of the platform, goals of the platform, and potential areas that could benefit from its use. Such keywords were analysed through the use of meta-search platforms, such as Dogpile, Vroosh, and Zapmeta, to gather relevant sources of information. Preliminary results were also further analysed in order to gather additional bibliographic sources.

Table 1 Keywords for the Bibliographic Search

INDUSTRY TERMS	INDUSTRY TERMS	TECHNOLOGICAL TERMS	GEOGRAPHICAL MARKETS
Audiovisual	Museums	Geopositioning	Global Market
Multimedia	Heritage	Network	Europe
Advertising	Digital	Platform	European Union
Tourism	Technology	Statistical Analysis	Spain
Culture	Gaming	Application	United Kingdom
Education	Smart Cities	Profiling	United States of America
Publishing	Monuments	User Interaction	
Arts	History	Market Value	

### 2.2.2. Results

The most prominent result of the keyword search was the identification of various markets and industries relevant to the CrossCult technologies. A list of industries includes:

- Education
- Electronic Publications
- Cultural Services
- Smart Cities
- Visual Arts
- Cultural Tourism
- Gaming
- Cultural and Creative Industries

- Advertising
- Museography

However, after further analysis, several categories are often grouped together into larger segments of the markets, as follows:

***Cultural and Creative Industries, Cultural Tourism, Cultural Services, Education, Smart Cities***

These five categories will be considered potential sectors of the CrossCult project, and will be analysed throughout the completion of this project. The reason as to the grouping of these variables include their common definitions in cultural databases and sources, the presence of information available, as well as the relevance to the CrossCult platform.

The information search also provided a large collection of databases and publications that form an essential foundation of knowledge regarding the industries, culture, and technology. A list of these sources is provided in the appendix of the report.

## 2.3. Initial Sector Prioritisation and Description

Based on previously obtained information as well as the data gathered from the keyword search, an initial exploration and prioritisation of industries has been conducted. Consideration was given to the segments that appear most applicable to the platform, as well as to those with the most potential for the future. This initial prioritisation is based mainly on qualitative content as well as the knowledge and preconceived notions for the uses of the CrossCult platform.

### 2.3.1. Cultural & creative industries

A cultural industry is a segment of the economy that includes the creation, management, and business of products or ideas with cultural importance – such fields may include design and media. The creative industry is similar in various ways, however is slightly larger due to a broader definition. The businesses, products, or services within creative industries concentrate primarily on artistic practices.<sup>1</sup>

Principal subsectors in cultural and creative industries include: design, visual arts, advertising, and gaming.

### 2.3.2. Cultural tourism

Cultural Tourism is the subsector of tourism that remains when recreational and adventure-based activities are not considered. Primary activities in the sector include tourism based on history, religion, differing societies, lifestyles, and so forth. The sector is considered of interest due to a market need for further digitized culture, the niche which the CrossCult platform is addressing.

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<sup>1</sup>Global Alliance for Cultural Diversity. *Understanding Creative Industries: Cultural Statistics For Public-Policy Making*. United Nations Educational, Scientific, and Cultural Organization. [www.portal.unesco.org/culture/es/files/30297/11942616973cultural\\_stat\\_EN.pdf/cultural\\_stat\\_EN.pdf](http://www.portal.unesco.org/culture/es/files/30297/11942616973cultural_stat_EN.pdf/cultural_stat_EN.pdf)

### 2.3.3. Cultural services (including museums)

The provision of Cultural Services is a broad industry, with numerous subsectors that are particularly relevant for CrossCult. Although it may overlap on multiple occasions with cultural and creative industries as well as cultural tourism, it should maintain a separate label due to unique aspects of its identity. The industry is service based, with each service containing an important connection to culture, such as museums, exhibitions, cultural consultants, and cultural-based education.

### 2.3.4. Education

While education is one of the largest industries in the world, complexities within the segment provide potential hindrances for the launch of the CrossCult product. Existing online platforms, coupled with the strong control of the industry by government and select publishers, can be challenging

The education industry is a combination of both public (government) and private activity. Expenditures on primary, secondary, and higher education comprise a large amount of the market value – although other indicators such as textbooks, electronic publications, and private activity also contribute.

The presence of a robust online presence through electronic platforms and publications signifies the existence of several barriers to entry, though other opportunities remain.

### 2.3.5. Smart cities

Smart Cities are a new, but quickly growing global phenomenon – the concept is the integration of technology with services for citizens in order to improve the efficiency of a city. The idea is focused on the development of cities, and revolves around the idea that information and communication technologies (ICT), alongside with the Internet of Things (IoT) can aid citizens in everyday life. Currently, there are over 200 projects across the world with the goals of creating and enabling these communities.

A “smart city” meets several qualifications, such as “smart governance”, “smart education”, as well as standards for the economy and environment.

Though the industry aligns with the CrossCult product in terms of integration with technology, it does not appear to be as ready a market entry as other segments in the market. For example, there are limited opportunities in terms of digital culture. Presently, there exists few companies in the industry that are addressing the lack of digital culture, thus further opportunities may arise in the near future.

## 2.4. Preliminary Interviews

In order to better understand the thoughts of stakeholders relevant to the CrossCult platform, GVAM conducted 34 preliminary expert interviews with clients and partners. These interviews were all completed face to face, from September through December of 2016. While some were completed with the topic of CrossCult as a prominent goal, other opinions were gathered through shorter conversations regarding the platform, often with regards to other related subjects. The primary purpose of these interviews was to gather initial opinions regarding the

interests of organisations regarding the platform and its services. The information gathered provides support and additional understanding of the market as strategy is developed.

These interviews are considered preliminary, as they were completed prior to the majority of business research and development was completed. Likewise, they do not address many of the findings discovered in the remainder of the report. In future stages of the project, the CrossCult team will continue to conduct more thorough interviews and conversations with potential stakeholders to analyse responses and opinions related to project findings. As the project is still in development, the vague definition of some services and outputs prohibited deeper conversation with respondents. It will be important to continue interviews as the precise modules and services of the platform become more defined.

As the project is still in development, the vague definition of some services and outputs prevented a more thorough level of discussion.

These interviews were completed following the identification of business sectors, thus most sectors are represented. Due to GVAM operating within Spain, the majority of such conversations were conducted with Spanish organisations. Further interviews throughout the business development will look to include institutions through Europe, in addition to addressing specific themes and topics relevant to the project.

The following contains a brief review of the findings of conversations, as well as examples of institutions that were contacted.

- **Cultural and Creative Industries** – PyroStudios (presently Pyros Mobile). An international videogame company, it leads the videogame production industry in Spain, with top selling titles including Comando's. The company is a part of a larger group of private companies, including software producers, animation, film making, and digital arts. While the company manages most of its needs with in-house services, they may use external specialists for specific services. The CrossCult platform could be of interest for their educational branches, however, more details and specifics are needed.
- **Cultural Tourism** – Julia Travel. A major tourism and travel contractor in Spain and Latin America, the company helps more than 5 million visitors a year with 200 different products. These products range from guided tours, groups, transportation, educational activities, and so forth. While providing personal service and attention is the core focus of the company, digital services and the diversification of users are interesting services with regards to integrated packages. Although they do not have an IT department, a unified platform with a collaborative relationship could provide a comfortable integration
- **Cultural Services** – Empty. As a museum contractor, Empty has developed major exhibitions and completed refurbishment projects at prominent museums around the world, including: the National Archeological Museum in Spain, Universal Pavilions in Shanghai, China, and the Fine Arts Museum in São Paulo, amongst others. Their projects require hundreds of workers and partners from a variety of disciplines. The use

of digital technologies and audiovisual tools are both important in their work, as such CrossCult could be installed in a variety of ways, including kiosks and onsite interaction tools.

- **Education** – Carlos III University at Madrid (UC3M). A public university considered one of the top 10 within Spain, it has 65,000 students, ranging from technical degrees to humanities. Within the institution, professors in humanities as well as audiovisual subjects demonstrated interest in tools of the platform. It was seen as a medium for which students could further develop their own projects. Likewise, it can also be of interest with relation to community interaction.
- **Smart Cities** – Malaga. As one of the most innovative cities in Spain, it is a hub of universities and technological companies. It is a leader in energy, transportation, and sustainability. Likewise, it is a prominent location for tourism in the south of Spain, and has museum branches of the Hermitage and Pompidou. In addition, the Picasso Museum, Fine Arts Museum, as well as Roman and Arabic monuments ensure that Malaga is an attractive location for tourists, and a potential site for CrossCult outputs.

Overall, many responses were encouraging, as respondents demonstrated interest in how the project could relate to their future objectives. Aspects of the platform such as a unified product that can integrate numerous services at a lost cost, as well as the opportunity to create impactful relationships with clients and visitors, were all considered popular.

## 2.5. Conclusions of the Bibliographic Preliminary Research

Conclusions of the preliminary research can be summarized into the following concepts:

- (1) Five main sectors emerge from the preliminary research. These sectors were determined based on common definitions of economy sectors, availability of information, and characteristics of the market that share similarities with the CrossCult platform.
  - Cultural and Creative Industries
  - Cultural Tourism
  - Cultural Services
  - Education
  - Smart Cities

### (2) Areas for analysis

The identification of relevant industries, in conjunction with additional findings in the bibliographic review, suggests a variety of themes to be considered throughout the market assessment. Factors such as competitive analysis, industry values, market drivers, market trends, and the integration of technology within these sectors should be primary focuses in the early stages of business development.

These aspects of the market are essential in order to develop a foundation on which a successful business model and plan can be produced for the CrossCult platform. The

understanding of competition and market trends will facilitate the creation of a strategy that addresses the opportunities present in the business environment.

The importance of these areas contributed to the design of this report, divided into the five phases referenced earlier according to theme and purpose. With sections dedicated to industry analysis, competitive analysis, market drivers, and stakeholder needs, the market assessment can successfully obtain essential information for business development.

### (3) Blurred sectors

Sectors originally intended to be stand-alone industries align closely with others, and are more appropriately deemed subsectors. Likewise, other subsectors are prominent and more apt to be named separate segments for analysis.

The identified principal sectors maintain independent identities, but do overlap, creating both confusion but also opportunities through the network of the market. One such example is that audiovisual and multimedia tools, as part of creative industries, may work closely with companies that provide cultural services.

Due to the complexities of the market, it is important to regularly consider the defining market elements of each industry and sector. Throughout the report, the key aspects of each sector will be identified. Upon the conclusion of all research in this report, a market checklist will be created in order to ensure that the CrossCult team will have the necessary information regarding market sectors prior to the end of platform and business development.

### (4) Complex data search

The complexity of the sectors and industries analysed provides potential challenges and difficulties in gathering accurate information. Some resources may not consider certain subsectors as prominent enough to warrant specific data, and rather, it is grouped with other sectors. Likewise, it may be difficult to completely eliminate overlap in sector data.

There is the potential that some sectors may lack quantitative data in general, or that others will lack information on a country-specific basis due to lack of reporting or popularity. Similarly, other issues may arise in the timing of data, as some countries and organisations may gather information more frequently than others. Due to such complexities in data, any uncertainties, calculations, or assumptions will be clearly noted.

The initial information collected in this pre-exploration of the market will be used throughout the following phases of the report, most prominently in the exploration of market industries.

## 3. Phase II: Exploratory Assessment

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### 3.1. Introduction to the Exploratory Assessment

The global economy is in a period of deep transformation – the growing popularity of digital technology, in combination with the permanent foundations of society such as culture and history, has created an atmosphere of innovation and change.

There are several sectors relevant to culture in which the technology boom and subsequent digitalization of material and activities have had a notable impact. Industries such as cultural tourism, education, and so forth, all display characteristics of a business environment open to technological development. The businesses, products, and services within each sector demonstrate the capacity for further technological innovation and integration, but also a need for information and data best provided by a new tool.

Earlier research of the broad global market indicated and prioritized several potential industries for market entry. Through further investigation, the total economic value of each sector has been determined, in addition to the segmentation of the sector to discover the industry best suited for the CrossCult technology. An analysis of such quantitative factors, in addition to consideration of the potential growth opportunity, as well as qualitative factors such as risks and opportunities, provides essential information for the decision of market entry.

### 3.2. Objectives of the Exploratory Assessment

The primary goal of the market study is the definition of the various sectors in the economy that are potentially suitable for increased integration with technology.

In order to achieve this goal, thorough research as to the value, potential growth, and complexities of each sector will be conducted. The market study will cover factors such as: size, economic resources, competition, and potential target customers. This research will not be limited to solely one geographic area. Where possible, the analysis of the sectors will be performed for the following locations.

- Global Market
- The European Union
- The United Kingdom – Representation of Northern Europe
- Spain – Representation of Southern Europe

Due to information constraints, there is the possibility that certain areas may lack a sufficient amount of data. This study analyses multiple markets and specific subsectors that appear to be the most suitable for market entry. As a result of such specificity, the information for some markets may be more recent than others. Likewise, it at times is difficult to find relevant or reliable information for other categories. Sectors with a lack of accurate data or situations in which data from different periods of time is compared will be noted.



The use of the United Kingdom and Spain as representatives of Northern and Southern Europe facilitates the collection of data, and mitigates potential problems from lack of information. The two countries generally maintain updated information regarding the industries of interest, thus the report can include accurate country-specific information. As two of the larger countries within Europe, the further analysis of the two countries can provide additional information that is valuable to the analysis of the market.

In order to better understand the past, present, and future of relevant industry sectors, two approaches will be used:

- A quantitative analysis of market size, economic value, relevant data, and potential growth rates, where possible.
  - The **Total Available Market (TAM)** is the overarching term for the total value or demand in a market. It can refer to revenue streams, market value, or customer demand.
  - The **Serviceable Available Market** refers to the portion of the market that is within reach of a company, and can be realistically targeted. It can be a percentage of a market, or a particular subsector that the company views particularly suitable for its product or service.
  - Future Projections: Growth rates will be determined using the **Compound Annual Growth Rate (CAGR)** – this term refers to the average growth rate each year of a number over a period of time. Due to the scarcity of information, the growth rate will not always be provided. In other situations, where possible, a recent growth rate from the past will be provided for comparison.
- Qualitative data, including the compilation of insightful information regarding a sector, and the identification of challenges and opportunities relevant to the statistics, will also be explored.

### 3.3. Market Analysis

Prior to the investigation of different sectors, it is important to briefly analyse the current status of the markets relevant to this report. Factors included in the analysis include population, economic productivity, digital usage, and business environment. Through these general factors, one can gain a general picture of the differences between the various markets. Further in-depth information regarding technology, culture, and the economy, will be provided in the analysis of various sectors.

All statistics are provided by Eurostat databases.<sup>2</sup>

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<sup>2</sup>Eurostat - Your Key To European Statistics". *Eurostat*. European Commission, 2017. Web. [www.ec.europa.eu/eurostat/data/database](http://www.ec.europa.eu/eurostat/data/database)

Table 2 General Market Statistics: All economic data is provided as billions of euros

	EUROPEAN UNION	UNITED KINGDOM	SPAIN
Population (inhab.)	511,698,062	65,830,647	46,447,260
Gross Domestic Product	€14,820	€2,368	€1,114

### 3.3.1. European Union

The European Union, currently comprised of 28 countries, is one of the largest generators of economic activity in the world. As of 2017, the area has a total population of over 511 million individuals. A sign of the strong economic capability of the union, the area has a Gross Domestic Product (GDP) of €14,820 billion.

With regards to the availability of technology within the European Union, 82% of the population between the ages of 16 to 74 has used the Internet in the past three months.

In terms of the role of the government in promoting technological advancement, 48% of EU residents have reported interacting with public authorities online, over the past 12 months, through: gathering information, downloading paperwork, submitting completed forms. This represents an increase in both the variety of activities in which citizens use the internet for, but also the improvements governments have made in e-Governance.

It is also quite important to note the willingness of businesses to use software in their operations. One popular tool among larger businesses is the use of Customer Relationship Management (CRM) software to gather data about clients and use it for future strategy. As of 2015, 21% of enterprises within the EU have reported doing so.

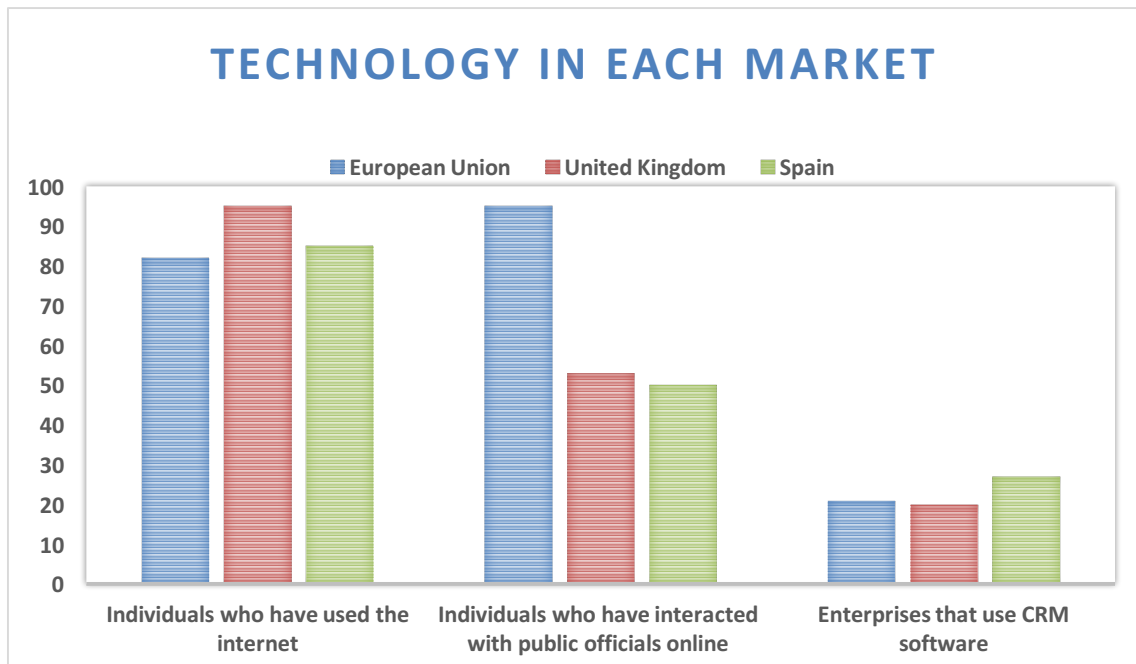


Figure 1 Technology in each market: All values are presented as a percentage of the total population in the market

### 3.3.2. United Kingdom

With a population of 65 million individuals, the United Kingdom has a GDP of €2,368 billion.

At a rate significantly larger than many of its fellow countries in the European Union, 95% of the population of the United Kingdom has reported using the Internet in the past three months.

The level of interaction between individuals with public officials online hovers a 53%.

Slightly under the EU average, only 20% of UK enterprises reports using CRM software to better understand their clients.

### 3.3.3. Spain

With just over 46 million residents, the GDP of Spain is currently situated at €1,114 billion. Related to the use of technology by individuals, 81% have used the internet in the past three months.

Slightly above the European average, 48% of individuals have reported interacting with their government online over the past 12 months.

With one of the largest rates in the region, 27% of businesses use CRM software in their client operations.

## Other Relevant Statistics

In the analysis of Spain and the United Kingdom, it is important to consider their capabilities in several broad concepts, such as innovation, digital capacity, and technology. Through the market analysis of different sectors, it appears that both countries display a high level of innovation in their economy, through business, as well as through culture.

A recent study by Bloomberg<sup>3</sup> analyses the performance of countries and their respective level of innovation with regards to research, development, education, business, and technology. The United Kingdom is considered to be the 10<sup>th</sup> most innovative country, while Spain is ranked 23<sup>rd</sup>.

An additional relevant factor in the analysis of a market is the level of digital connectivity and advancement present within a country. The Digital Economy and Society Index<sup>4</sup> studies the performance of European countries with regards to innovation, technology in schools, internet capabilities, the use of digital technology in business, as well as the use of technology by the government.

In the 2017 study, the United Kingdom is ranked 7<sup>th</sup> in the European Union, with high scores for individual connectivity and technological skills, however, with room for improvement on the use of technology by the public sector and business.

Meanwhile, Spain is ranked 14<sup>th</sup>, but maintains an above average performance level overall. The study cites a strong ranking of the country in terms of the success of businesses and public services.

*It is clear that while the European Union as a whole excels in a variety of areas, both Spain and the United Kingdom maintain strong individual performances in business innovation, economic factors, and technological advancement. As such, it will be essential to distinguish their performance with regards to the potential sectors in each market.*

### 3.4. Reiteration of Potential Sectors

In the pre-exploration phase of the report, five main sectors of interest were identified for further exploration and analysis – each sector has unique subsectors, and smaller, more serviceable markets.

1. **Cultural and Creative Industries**
2. **Cultural Tourism**
3. **Cultural Services**
4. **Education**

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<sup>3</sup>Jamrisko, Michelle, and Wei Lu. "These Are The World's Most Innovative Economies - Bloomberg Innovation Index". *Bloomberg*. Bloomberg L.P 2017. Web. [www.bloomberg.com/news/articles/2017-01-17/sweden-gains-south-korea-reigns-as-world-s-most-innovative-economies](http://www.bloomberg.com/news/articles/2017-01-17/sweden-gains-south-korea-reigns-as-world-s-most-innovative-economies)

<sup>4</sup> The Digital Economy and Society Index (DESI) 2017. Digital Single Market. "The Digital Economy and Society Index (DESI)". *Digital Single Market*, 2017. Web. [www.ec.europa.eu/digital-single-market/en/desi](http://www.ec.europa.eu/digital-single-market/en/desi)

## 5. Smart Cities

In the following sections, a clear definition will be provided, supported by an in-depth statistical analysis.

### 3.5. Sector Analysis: Cultural and Creative Industries

A term made popular by UNESCO, cultural and creative industries are two separate areas that have many similarities. A cultural industry is the sector of the economy that includes the development and commerce of intangible elements or ideas that contain cultural significance. Prominent fields in this industry include design and media.

The creative industry is slightly larger, and contains many of the same elements as the cultural industry. However, the businesses, products, or services within the creative industry have a prominent focus on artistic practices.<sup>5</sup>

The term covers both products and services, thus, for example, interior design as a service, but also products relevant to interior design, can both be considered part of the industry.

As a broad industry, it is important to differentiate the individual sectors and segments, and their respective values, growth rates, and potential. The sectors may act independently, and some may appear more fitting for the CrossCult platform than others.

#### 3.5.1. TAM Quantification and Characterisation

In 2013, cultural and creative industries (CCIs) worldwide generated revenues of €2,093 billion (3% of world GDP) and employed 29 million people<sup>6</sup>. When combined, the various subsectors of the industry serve as an integral cornerstone of the global economy.

With total revenue in the industry of €660 billion in 2013, CCIs comprised 4.2% of the GDP of Europe. The sector is the third largest employer on the continent, following construction and the food and beverage industry.<sup>7</sup> It employs 6.7 million individuals, or 3% of European workers. For comparison, CCIs contributed 2.6% of the GDP of the European Union in 2003, demonstrating the evolution of the industry and economy.

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<sup>5</sup>Global Alliance for Cultural Diversity. *Understanding Creative Industries: Cultural Statistics For Public-Policy Making*. United Nations Educational, Scientific, And Cultural Organization. [www.portal.unesco.org/culture/es/files/30297/11942616973cultural\\_stat\\_EN.pdf/cultural\\_stat\\_EN.pdf](http://www.portal.unesco.org/culture/es/files/30297/11942616973cultural_stat_EN.pdf/cultural_stat_EN.pdf)

<sup>6</sup>EY. *Cultural Times: The First Global Map Of Cultural And Creative Industries*. International Confederation Of Societies Of Authors And Composers, 2015. Web. [www.ey.com/Publication/vwLUAssets/ey-cultural-times-2015/\\$FILE/ey-cultural-times-2015.pdf](http://www.ey.com/Publication/vwLUAssets/ey-cultural-times-2015/$FILE/ey-cultural-times-2015.pdf)

<sup>7</sup>EY. *Creating Growth: Measuring Cultural And Creative Markets In The EU*. European Grouping Of Societies Of Authors And Composers, 2014. Web. [www.ey.com/Publication/vwLUAssets/Measuring\\_cultural\\_and\\_creative\\_markets\\_in\\_the\\_EU/%24FILE/Creating-Growth.pdf](http://www.ey.com/Publication/vwLUAssets/Measuring_cultural_and_creative_markets_in_the_EU/%24FILE/Creating-Growth.pdf)

**Table 3. Statistics about Cultural and Creative Industries: TAM size data (and other size input) obtained during the study are presented as billions of € (B€). This information represents the total value of the sector in a given year. CAGR values available are**

Market	GLOBAL	EUROPE	UK	SPAIN
Cultural and Creative Industries	2,093 <sup>8</sup> (2013)	660 (2013)	98.4(2014) 102(2015) Growth: 3.5%(2014-2015)	4.8 <sup>9</sup> (2012)
Online Advertising	11(2015) Growth: 17.8% (2014-2015)	21 (2015) 133 (2017) Growth: 12.1%(2014-2015)	14 (2015) 19.2 (2020) Growth: 7.78% (2015-2020)	1.58 (2015) Growth: 20.9% (2014-2015)
Mobile Device Games	19.7 (2017) 30.6 (2020) Growth: 11.6% (2015-2020)	2 (2012)	0.6 (2014) 0.8 (2015)	0.28 (2015) 0.4 (2020) Growth: 7.39% (2015-2020)

Activity within CCIs contributed €186 billion to global digital sales in 2013. In the digital economy, cultural goods are the largest source of revenue, with €61.4 billion in sales from businesses to consumers in 2013.

Three of the largest generators of activity in Europe in 2012 were: the visual arts (€127 billion), advertising (€93 billion) and TV (€90 billion)<sup>10</sup>. Together, the three accounted for approximately half of the activity within cultural and creativity industries.

<sup>8</sup>EY. *Cultural Times: The First Global Map Of Cultural And Creative Industries*. International Confederation Of Societies Of Authors And Composers, 2015. Web. [www.ey.com/Publication/vwLUAssets/ey-cultural-times-2015/\\$FILE/ey-cultural-times-2015.pdf](http://www.ey.com/Publication/vwLUAssets/ey-cultural-times-2015/$FILE/ey-cultural-times-2015.pdf)

<sup>9</sup>Anuario De Estadísticas Culturales (Yearbook Of Cultural Statistics). Ministerio de Educación, Cultura, y Deportes (Ministry of Education, Culture, and Sport), 2017. Web. [www.es.calameo.com/read/0000753356d6de6244c72](http://www.es.calameo.com/read/0000753356d6de6244c72)

<sup>10</sup>EY. *Creating Growth: Measuring Cultural And Creative Markets In The EU*. European Grouping Of Societies Of Authors And Composers, 2014. Web. [www.ey.com/Publication/vwLUAssets/Measuring\\_cultural\\_and\\_creative\\_markets\\_in\\_the\\_EU/%24FILE/Creating-Growth.pdf](http://www.ey.com/Publication/vwLUAssets/Measuring_cultural_and_creative_markets_in_the_EU/%24FILE/Creating-Growth.pdf)

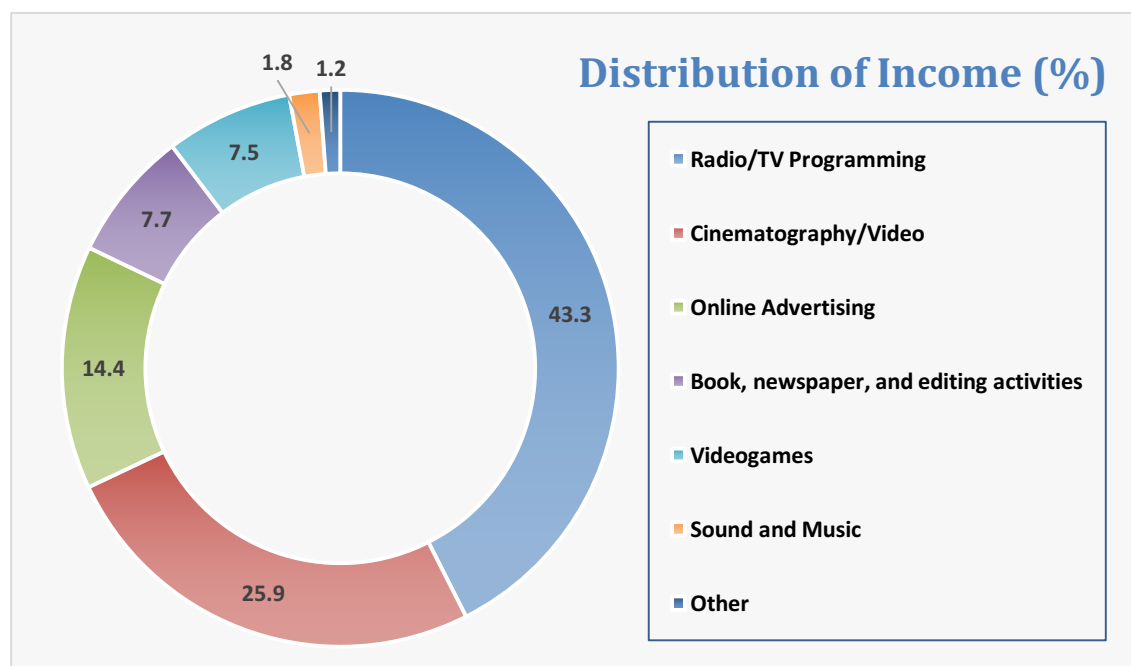


Figure 2 Distribution of the income in Cultural and Creative Industries: All values are displayed as a per-centage of total income

### 3.5.2. SAM Quantification and Characterisation

After close analysis of the many subsectors of Cultural and Creative Industries, two appear most suitable for the CrossCult platform: advertising and gaming. Functions such as geopositioning, content creation and visualisation, and user-specific services such as navigational paths, are all enticing services within the gaming industry. The use of geopositioning and pre-determined routes are also valuable tools in the creation of an advertising platform, as it can entice local businesses and institutions to participate. In the section that follows, additional detail is provided regarding each subsector, with further information regarding the potential success of the serviceable available markets.

#### 3.5.2.1. ADVERTISING

##### TAM QUANTIFICATION AND CHARACTERIZATION

Relative data in the advertising sector was obtained primarily from the study Worldwide Ad Spending<sup>11</sup>. Globally, spending on advertising and paid media worldwide will rise 7.2% in 2016 to €515 billion and grow to €677.8 billion by 2020.

<sup>11</sup>Liu, Cindy et al. *Worldwide Ad Spending; Emarketer's Updated Estimates And Forecast For 2015–2020*. Emarketer, 2016. Web. [www.bluemoondigital.co/wp-content/uploads/2016/12/eMarketer\\_US\\_Ad\\_Spending-eMarketers\\_Updated\\_Estimates\\_and\\_Forecast\\_for\\_2015%E2%80%932020.pdf](http://www.bluemoondigital.co/wp-content/uploads/2016/12/eMarketer_US_Ad_Spending-eMarketers_Updated_Estimates_and_Forecast_for_2015%E2%80%932020.pdf)

Europe, and more specifically the United Kingdom and Spain, mirror these increases, though at rates below the global increase.

Table 4. Statistics regarding Advertising: TAM size data (and other size input) obtained during the study are presented as billions of € (B€). This information represents the total value of the sector in a given year. CAGR values available are presented as perc

Market	GLOBAL	EUROPE	UK	SPAIN
Advertising	515(2015) 677.8(2020) Growth: 7.1%(2015-2020)	110 (2015) 116.5 (2020) Growth: 2.52% (2015-2020)	23.7(2015) 29.8(2020) Growth: 4.69%(2015-2020)	5.25(2015) 6.18(2020) Growth: 3.34% (2015-2020)
Online advertising	121 <sup>12</sup> (2014) Growth: 16% (2014-2016)	36.2 <sup>13</sup> (2015) 133 (2017) Growth: 13.1% <sup>13</sup> (2014-2015)	13.2 (2015) 19.2 (2020) Growth: 10.23% (2015-2020)	1.2 (2015) Growth: 20.9% (2014-2015)
Mobile advertising	67.1 (2015) 231.4 (2020) Growth: 29.8% (2015-2020) <sup>14</sup>	11.52 (2015) 36.24 (2020) Growth: 25.8% (2015-2020)	5.16 (2015) 14.7 (2020) Growth: 23% (2015-2020)	0.24 (2015) 1.07 (2020) Growth: 35% (2015-2020)

## SAM QUANTIFICATION AND CHARACTERIZATION

Within advertising, digital and mobile advertising are experiencing rapid growth and are considered most viable for the CrossCult platform. Online advertising had a value of approximately €121 billion in 2014, and was expected to growth at 16%, fast outpacing traditional models. Mobile advertising, relatively newer, achieved a sum of €67.1 billion in 2015.

## MARKET POTENTIAL (CAGR)

<sup>12</sup>Lunden, Ingrid. "Internet Ad Spend To Reach \$121B In 2014, 23% Of \$537B Total Ad Spend, Ad Tech Boosts Display". *Techcrunch*. AOL Inc. 2014. Web. [www.techcrunch.com/2014/04/07/internet-ad-spend-to-reach-121b-in-2014-23-of-537b-total-ad-spend-ad-tech-gives-display-a-boost-over-search/](http://www.techcrunch.com/2014/04/07/internet-ad-spend-to-reach-121b-in-2014-23-of-537b-total-ad-spend-ad-tech-gives-display-a-boost-over-search/)

<sup>13</sup>International Advertising Bureau UK. *European Online Advertising Reaches Record Annual Spend Of €36.2Bn*. 2017. Web. [www.iabuk.net/about/press/archive/european-online-advertising-reaches-record-annual-spend-of-362bn](http://www.iabuk.net/about/press/archive/european-online-advertising-reaches-record-annual-spend-of-362bn)

<sup>14</sup>Liu, Cindy et al. *Worldwide Ad Spending; Emarketer's Updated Estimates And Forecast For 2015–2020*. Emarketer, 2016. Web. [www.bluemoondigital.co/wp-content/uploads/2016/12/eMarketer\\_US\\_Ad\\_Spending-eMarketers\\_Updated\\_Estimates\\_and\\_Forecast\\_for\\_2015%E2%80%932020.pdf](http://www.bluemoondigital.co/wp-content/uploads/2016/12/eMarketer_US_Ad_Spending-eMarketers_Updated_Estimates_and_Forecast_for_2015%E2%80%932020.pdf)



Overall, nearly every area and market of the advertising sector displays promising potential. Globally, the market will experience a CAGR of 7.1% between 2015 and 2020, although the rates in Europe are slightly lower.

The growth of the online and mobile markets for advertising demonstrates the power of the industry in the future, with global expectations of growth of 16% and 29.8% respectively.

### 3.5.2.2. GAMING

#### TAM QUANTIFICATION AND CHARACTERIZATION

Table 5 Statistics regarding Gaming:TAM size data (and other size input) obtained during the study are presented as billions of € (B€). This information represents the total value of the sector in a given year. CAGR values available are presented as percentages,

Market		GLOBAL	EUROPE	UK	SPAIN
Gaming	Videogames	74.5 (2016) 107 (2020) Growth: 9.5% (2015-2020)	16 <sup>15</sup> (2012)	3.4 (2016)	0.5 (2015) Growth: 23.7%(2014-2015)
	Mobile Device Games	19.7 (2017) 30.6 (2020) Growth: 11.6% (2015-2020)	2 <sup>15</sup> (2012)	0.6 (2014) 0.8 <sup>16</sup> (2015)	0.28 (2015) 0.4 (2020) Growth: 7.39% (2015-2020)
	Virtual Reality Games	2.5 <sup>17</sup> (2016) 19.2(2020) Growth: 66.47%(2016-2020)	1.9 <sup>18</sup> (2016)	(RISNF)	.045 <sup>19</sup> (2016)

Gaming is defined as the subsector that includes video game publishers, developers, retailers and sellers of equipment and devices.

<sup>15</sup>van der Pol, Hendrik. "Key Role Of Cultural And Creative Industries In The Economy". *Statistics, Knowledge And Policy* 2007. OECD, 2008. Web. [www.oecd.org/site/worldforum06/38703999.pdf](http://www.oecd.org/site/worldforum06/38703999.pdf)

<sup>16</sup>Kamen, Matt. "The UK's Games Industry Is Now Worth Almost £4.2Bn". *WIRED UK*. Condé Nast. 2016. Web. [www.wired.co.uk/article/uk-games-industry-4bn](http://www.wired.co.uk/article/uk-games-industry-4bn)

<sup>17</sup>Ministerio de Energía, Turismo, y Agenda Digital (Ministry of Energy, Tourism, and Digital Agenda. *Informe Anual Del Sector TIC Y De Los Contenidos En España (Annual Report of the ICT Sector And Contents In Spain)*. 2017. Web. [www.ontsi.red.es/ontsi/sites/ontsi/files/Informe%20Anual%20del%20Sector%20TIC%20y%20Contenidos%202016\\_0.pdf](http://www.ontsi.red.es/ontsi/sites/ontsi/files/Informe%20Anual%20del%20Sector%20TIC%20y%20Contenidos%202016_0.pdf)

<sup>18</sup>Gaudiosi, John. "Virtual Reality Video Game Industry To Generate \$5.1 Billion In 2016". *Fortune*. Time Inc. 2016. Web. [www.fortune.com/2016/01/05/virtual-reality-game-industry-to-generate-billions/](http://www.fortune.com/2016/01/05/virtual-reality-game-industry-to-generate-billions/)

<sup>19</sup>Sánchez, J.M. "Realidad Virtual: El Sector En España Superará Los 45 Millones De Euros (Virtual Reality: The Sector in Spain will Surpass 45 Million Euros)". *ABC*. Diario ABC. 2016. Web. [www.abc.es/tecnologia/informatica/soluciones/abci-realidad-virtual-sector-espana-superara-45-millones-euros-201609211007\\_noticia.html](http://www.abc.es/tecnologia/informatica/soluciones/abci-realidad-virtual-sector-espana-superara-45-millones-euros-201609211007_noticia.html)

In considering the launch of CrossCult products, the hardware based part of the subsector will not be of interest, as the software will not be using video game related hardware. However, for the purpose of this study, the hardware market is included in calculations due to the lack of data on solely software.

In 2016, the global market for videogames reached a value of about €74.5 billion. In 2020 this number is expected to increase to more than €107 billion.

Within Europe, the income for the videogame industry in 2012 was €16 billion.

### **SAM QUANTIFICATION AND CHARACTERIZATION**

One of Nesta's 10 predictions for 2017 states software and applications which involve technologies such as Virtual Reality (VR) and Augmented Reality (AR) are growing in popularity. Expectations indicate that between 2016 and 2020, business models reliant on videogame consoles will decline in popularity as strategies focus on mobile devices and virtual reality experiences. With relation to cultural institutions, museum curators and artists are beginning to integrate AR and VR in their collections, in order to explore the potential for new engagement with audiences. As such, exhibits that involve VR and AR elements can directly transform the art experience.

One can foresee these predictions within the quantitative data of the industry. For example income for mobile device games is expected to grow from €19.7 billion in 2016 to €30.6 billion in 2020. Within Virtual Reality, sales are estimated to increase from €2.5 billion in 2016 to €19.2 billion in 2020.

Other relevant information includes the average market penetration of free online activities, which in Spain is 52%, while in UK it is 45%.

### **MARKET POTENTIAL (CAGR)**

Calculations of the global growth of the video game sector for the period between 2012 and 2016 indicate a rate of 9.5%.

Although it is difficult to make future projections on a micro scale, past success indicates that the sector in Spain increased 23.7% from 2014 to 2015.

Both mobile games and Virtual Reality will experience high growth rates in the coming years. For mobile games, the CAGR is an estimated 11.6% from 2016 to 2020, while VR will see an incredible 66.5% growth as the industry truly begins to launch.

### **3.5.3. Relation of the CCIs with the Cultural, Touristic, and/or Technological Sectors**

Culture is at the foundation of digital innovation: in recent years, a large number of digital companies, applications, and tools, are concentrated on cultural works with the goal of increasing recognition, dissemination, or curation. The increased innovation through

technology has had similar effects on other areas of the creative and cultural sectors, as individuals in the industry continue to suggest new proposals. The impact of such digital innovation can also directly impact consumers, with an increased access to information.

*Europe 's future will be shaped by the current digital transformation of society and the modern economy. With new business models and ideas that integrate content and communication technologies, it will be common to see services and products experience incredible changes. Today, the use of technology can fundamentally affect aesthetics, functionality, and content.*

Gaming and advertising are adapting rapidly to the changing technology, expanding the industry onto online platforms and tools. Other creative industries, such as design, are using technological tools to facilitate their work.

### 3.5.4. Main Challenges and Opportunities

In each country, the size, definition, and prominence of cultural and creative industries can vary. Certain sectors are general inclusions in nearly all definitions, such as, gastronomy, fashion, literature, photography, design, theatre, cinema, video art, architecture, classic and contemporary music, dance and folk music. Others may be deemed cultural industries in some countries, or cultural services in others. Thus, a challenge in entering the overall industry is defining a clear market and relevant sectors if interest.

While the differentiation in definitions in each country poses a challenge in data collection, the simple lack of accurate information is also a potential risk. Cultural and Creative Industries are not a high priority for many agencies or governments, and as such, the industry lacks the appropriate assets and capabilities to collect and record data accordingly.<sup>20</sup> Likewise, current data collection cannot cover such a broad industry, as such, statistical data may often exclude some information.<sup>21</sup>

As a result of the fluctuating market, certain statistics may overlap with others often considered a part of cultural services. Although subsectors like film, performing arts, architecture, gastronomy, music, television and radio are not included in the specific interests of the CrossCult program, it is important to remain cognizant of them as they can likely be of interest for future expansion.

Relative to other sectors, partners of CrossCult in the Cultural and Creative Industries may consist mostly of businesses and enterprises as opposed to public institutions. As such, CrossCult will need to explore this market through a different perspective.

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<sup>20</sup>Wheatley, Alan. "Asian Style". *International Monetary Fund*, International Monetary Fund. 2014. Web. [www.imf.org/external/pubs/ft/fandd/2014/06/wheatley.htm](http://www.imf.org/external/pubs/ft/fandd/2014/06/wheatley.htm)

<sup>21</sup>van der Pol, Hendrik. "Key Role Of Cultural And Creative Industries In The Economy". *Statistics, Knowledge And Policy* 2007. OECD, 2008. Web. [www.oecd.org/site/worldforum06/38703999.pdf](http://www.oecd.org/site/worldforum06/38703999.pdf)

However, elements such as advertising and gaming elements can be easily integrated into the content of the platform.

Individual subsectors of interest demonstrate promising potential and opportunities for expansion: advertising and gaming.

#### **3.5.4.1. Advertising**

A growing type of advertising is RTB (Real Time Bidding), a mechanism by which an advertisement is inserted (in web pages, social networks, mobile apps, etc.). Auctions occur in real time regarding the existing spaces, and user information, based on obtaining cookies. The advertiser, who has the highest offer, or bid, earns the opportunity to display their ad in the auctioned space. This process is performed in milliseconds, offering benefits to all the participants: the auctioneer obtains a higher price for the space; the advertiser can position its ad in a more effective way since it counts with the user profile information and the user will receive advertisements based on preferences as opposed to random information.

CrossCult has the potential to serve both as a primary platform for advertising agencies, in terms of content management and presentation. Other options, explored more in depth in the analysis of business models, include the use of the platform as a medium for businesses to advertise. As an example, a tourism agency can advertise its services on the platform as used by a local museum or monument.

#### **3.5.4.2. Gaming**

The growth of the video games sector is rapid, with the industry now one of the most dynamic sectors of the market. The boom of mobile games, coupled with strong performances of console and PC games, as well as the innovation in the market, are all signs of the success of the industry. The rapid spread and evolution of mobile multifunction devices, notably smartphones and tablets, is driving growth by enabling gamers to play anywhere. Augmented and virtual reality will serve as main factors for the economic development of the sector in the following years.

As a sign of such growth, in 2013, the turnover of the two largest European mobile game developers was greater than the turnover of every single mobile developer in 2012. While this is a sign of increased performance in the market, it also signals the lack of mid-sized European companies in the creative sectors.

### **3.5.5. Other Relevant Information**

Sectors within Cultural and Creative Industries can serve as important contributors to other portions of the economy. A prominent use of technology is for access to creative industries,

such as gaming, arts, or cinema. Industries are also highly integrated with agents of cultural tourism, as well as cultural service providers, thus spurring growth in the market.<sup>22</sup>

Potential stakeholders and clients in the industry include:

- Cultural content creators (visual and text information)
- Advertising agencies looking to promote individual institutions or a concept
- Gaming companies looking to explore cultural content
- Creative businesses looking for broader dissemination or interaction with clients

### 3.6. Sector Analysis: Cultural Tourism

#### 3.6.1. TAM Quantification and Characterisation

Cultural tourism is the sector of tourism which includes a region's culture, religion, art, people, history, and other fundamental aspects of the society. An individual who embarks on a cultural trip typically intends to learn and immerse oneself in the heritage and lifestyle of a differing society. Participation in local events, or visits to local facilities, may qualify as cultural tourism.

Tourism has grown globally from €1.85 billion in 1950 to €1,165 billion in 2015<sup>23</sup>. Long term forecasts from the UNWTO (United Nations World Tourism Organisation) establish that international tourist arrivals will grow to 1.8 billion by 2030<sup>24</sup>. Tourism is calculated to represent 10% of the global GDP (direct, indirect and induced impacts) and 7% of the exports. This economic activity translates into important benefits for the local communities, as the sector responsible for 1 of every 11 jobs worldwide.

A report for the World Travel & Tourism Council suggests that within Europe, travel and tourism was a direct contributor to approximately 14,229,000 jobs, indicating that is an important source of employment.

Research data published by the OECD in 2009 entitled *The Impact of Culture on Tourism* states that in 2007, 360 million international trips can be attributed to cultural tourism, accounting for 40% of global tourism. This percentage is also provided by the European Commission. When applying this percentage to recent data regarding global tourism, the value of the

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<sup>22</sup>EY Romania. *With 7 Million Jobs And Half Trillion Revenues, Creative And Cultural Industries Play A Key Role In European Recovery*. 2014. Web. [www.amcham.ro/index.html/articles?articleID=2125](http://www.amcham.ro/index.html/articles?articleID=2125)

<sup>23</sup>United Nations World Tourism Organization. *UNWTO Tourism Highlights, 2016 Edition*. UNWTO, Madrid, Spain, 2016. Web. [www.e-unwto.org/doi/pdf/10.18111/9789284418145](http://www.e-unwto.org/doi/pdf/10.18111/9789284418145)

<sup>24</sup>*Tourism Towards 2030 / Global Overview*. 1st ed., Madrid, Spain, United Nations World Tourism Organization, 2011. Web. [www.wise.co.th/wise/Knowledge\\_Bank/References/Tourism/UNWTO\\_Tourism\\_Towards\\_2030.pdf](http://www.wise.co.th/wise/Knowledge_Bank/References/Tourism/UNWTO_Tourism_Towards_2030.pdf)

cultural tourism industry in 2016 is approximately €849.6 billion, €219.8 billion of which is in Europe. If the 40% rate is also applied to total employment, the sector employs nearly 5.69 million individuals.

### 3.6.2. SAM Quantification and Characterisation

In January 2017 the database of the Europeana Collections<sup>25</sup> had 53 million objects in over 50 languages, a signal of the vast content present in the sector. Unfortunately, there is little existing information regarding the percentage of this content considered digitized. The digital rate of content and services, which is the rate that measures the percentage of income derived from the development, edition, distribution, and commercialisation of various activities, will be used, as it is expected to be similar. This rate hovers around 57.8%, and has an estimated growth of 2% each year. Using this information, the digitized cultural tourism market would have a global size of €491 billion.

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<sup>25</sup>"Europeana Collections". *Europeana*, 2017, <http://www.europeana.eu/portal/en>.

Table 6 Statistics regarding Gaming:TAM size data (and other size input) obtained during the study are presented as billions of € (B€). This information represents the total value of the sector in a given year. CAGR values available are presented as percentages, representing the percent growth. It is important to notice that the data does not always correspond to the same years.

Market	GLOBAL	EUROPE	UK	SPAIN
Tourism	2124(2016)  Growth: 4%(2017-2027)	547.9 <sup>26</sup> (2016)  Growth: 2.3%(2017-2027)	78.2 <sup>27</sup> (2016)  Growth: 2.2%(2017-2027)	57.1 <sup>28</sup> (2016)  Growth: 2% (2017-2027)
Cultural Tourism	849.6(2016)	219.8(2016)	31.28(2016)	22.84(2016)
Digitized Cultural Tourism	491 (2016)	127(2016)	18.08 (2016)	13.2(2016)

### 3.6.3. Market Potential (CAGR)

Tourism will continue to grow in the following years, experiencing a compound rate of 4% between 2017 and 2027. Cultural tourism, as well as digitized cultural heritage, will likely see similar rates.

### 3.6.4. Relation of Cultural Tourism with the Cultural, Touristic, and/or Technological Sector

The interpretation and conservation of historical, cultural, and/or natural heritage is considered a touristic industry. IT is now an increasingly popular belief that digital culture and heritage can have an enormous impact on the tourism industry. The interpretation and conservation of historical, cultural and/or natural heritage is considered a touristic industry<sup>29</sup>.

Digitized cultural heritage is intricately linked with cultural tourism, as it contributes prominently to the behaviour and knowledge of a visitor. The integration of culture and technology can contribute to the awareness of an individual, or motivate certain actions.

<sup>26</sup>World Travel & Tourism Council. *Travel & Tourism Economic Impact 2017. European Union LCU*. World Travel & Tourism Council, London, United Kingdom, 2017. Web. [www.wttc.org/-/media/files/reports/economic-impact-research/regions-2017/europeanunionlcu2017.pdf](http://www.wttc.org/-/media/files/reports/economic-impact-research/regions-2017/europeanunionlcu2017.pdf)

<sup>27</sup>World Travel & Tourism Council. *Travel & Tourism Economic Impact 2017. Spain*. World Travel & Tourism Council, London, United Kingdom, 2017. Web. [www.wttc.org/-/media/files/reports/economic-impact-research/countries-2017/spain2017.pdf](http://www.wttc.org/-/media/files/reports/economic-impact-research/countries-2017/spain2017.pdf)

<sup>28</sup>World Travel & Tourism Council. *Travel & Tourism Economic Impact 2017. Spain*. World Travel & Tourism Council, London, United Kingdom, 2017. Web. [www.wttc.org/-/media/files/reports/economic-impact-research/countries-2017/spain2017.pdf](http://www.wttc.org/-/media/files/reports/economic-impact-research/countries-2017/spain2017.pdf)

<sup>29</sup>Ministerio de Industria, Energía y Turismo (Ministry of Industry, Energy and Tourism). *TIC Y Turismo: Situación, Políticas, Y Perspectivas (ICT And Tourism: Situation, Policies, And Perspectives)*. Web. [www.ontsi.red.es/ontsi/sites/ontsi/files/informe\\_tic\\_y\\_turismo.pdf](http://www.ontsi.red.es/ontsi/sites/ontsi/files/informe_tic_y_turismo.pdf)



Likewise, the availability of digital information can aid in the publicity of organisations and create connections between institutions and individuals.<sup>30</sup>

CrossCult provides the platform in which such heritage and culture can use technology to achieve greater promotion and audiences. Information, products, and services can be accessed in a new and innovative manner.

### 3.6.5. Main Challenges and Opportunities

Alongside tourism's expansion, cultural routes have been gaining increasing prominence. International tourism is undergoing a transformation in how it is developed, marketed and managed, driven by rapidly changing visitor expectations. Visitors are now seeking integrated experiences which enable them to fully immerse themselves in a place, its people and its culture. The establishment of cultural routes and visitor itineraries along and across different regions has opened up opportunities to design and develop valuable tourism experiences while offering immense opportunities for economic growth and inclusive development by creating employment, enhancing business opportunities and revitalizing local communities and destinations<sup>31</sup>.

*As a platform, CrossCult offers the opportunity to enhance these immersive experiences, and continue to aid communities through the use of navigational paths. Services within the application such as geopositioning, route navigation, and machine reasoning, appear highly related to the cultural tourism sector.*

### 3.6.6. Other Relevant Information

Spain topped the 2015 edition of the *Travel & Tourism Competitiveness Index* (TTCI) global rankings for the first time, followed in order by France, Germany, the United States, the United Kingdom, Switzerland, Australia, Italy, Japan and Canada.

Spanish activities with direct relation to the tourism industries, such as specific libraries, archives, museums, and other cultural institutions, totalling 2,950 enterprises, had €710 million income in 2013<sup>32</sup>.

Potential clients and stakeholders in this sector<sup>33</sup> include:

- Local and regional governments interested in enhancing tourism experiences

<sup>30</sup>Hadžić, Olga. *Tourism And Digitization Of Cultural Heritage*. Review Of The National Center For Digitization, 2017, pp. 74-79, <http://elib.mi.sanu.ac.rs/files/journals/ncd/5/d011download.pdf>

<sup>31</sup>*The Phoenicians' Route Cultural Tourism Programme: Vision, Roadmap And Action Plan*. 2016. Web. [www.cf.cdn.unwto.org/sites/all/files/pdf/phoeniciansrouteculturaltourismprogramme\\_briefnote\\_0.pdf](http://www.cf.cdn.unwto.org/sites/all/files/pdf/phoeniciansrouteculturaltourismprogramme_briefnote_0.pdf)

<sup>32</sup>Ministerio de Industria, Energía y Turismo (Ministry of Industry, Energy and Tourism). *TIC Y Turismo: Situación, Políticas, Y Perspectivas (ICT And Tourism: Situation, Policies, And Perspectives)*. Web. [www.ontsi.es/ontsi/sites/ontsi/files/informe\\_tic\\_y\\_turismo.pdf](http://www.ontsi.es/ontsi/sites/ontsi/files/informe_tic_y_turismo.pdf)

<sup>33</sup>*The Phoenicians' Route Cultural Tourism Programme: Vision, Roadmap And Action Plan*. 2016. Web. [www.cf.cdn.unwto.org/sites/all/files/pdf/phoeniciansrouteculturaltourismprogramme\\_briefnote\\_0.pdf](http://www.cf.cdn.unwto.org/sites/all/files/pdf/phoeniciansrouteculturaltourismprogramme_briefnote_0.pdf)



- Cultural Organisations and Associations
- Tourism Associations and Organisations
- Tourism Agencies, guide operators, local businesses

### 3.7. Sector Analysis: Cultural Services

Cultural goods and services are special goods that carry symbolic, aesthetic, artistic or cultural value. Cultural services include activities like cultural consultancy, museum and exhibition services, as well as cultural training and cultural education.

#### 3.7.1. TAM Quantification and Characterisation

Table 7 Statistics regarding Cultural Services: TAM size data (and other size input) obtained during the study are presented as billions of € (B€). This information represents the total value of the sector in a given year. CAGR values available are presented as percentages, representing the percent growth. It is important to notice that the data does not always correspond to the same years.

Market	EU	UK	SPAIN
Cultural Services	300 (2013)	68.1 (2013)	3.9 (2010)
Digital Cultural Services	153 (2013)	36.1 (2013)	1.8 (2010)

In 2013, there were an estimated 675,000 cultural market-oriented enterprises (covered by SBS) in the EU, which corresponded to 6.4% of all enterprises in all services (except trade and financial and insurance activities). Cultural enterprises employed close to 2.2 million people (self-employed and employees), an average of 3 people per institution. The sector's turnover in 2013 was €300 billion, which represented 5.3% of the turnover of all services<sup>34</sup>.

With 9.2 % of all EU cultural enterprises in 2013, the United Kingdom accounted for 22.7 % of the turnover of EU cultural businesses. Together with Germany (20.8 %) and France (16.6 %), these three countries generated 60 % of EU cultural turnover. The United Kingdom was also the Member State in which the turnover of cultural businesses was highest as a proportion of total services: 6.4 %, which is more than a percentage point higher than the EU average (5.3 %).

Cultural services in Spain represented 56.6% of the cultural account in 2010, which was €6,869 million<sup>35</sup>.

<sup>34</sup>"Cultural Statistics - Cultural Enterprises". *Eurostat - Statistics Explained*. European Commission. 2017. Web. [www.ec.europa.eu/eurostat/statistics-explained/index.php/Culture\\_statistics\\_-\\_cultural\\_enterprises](http://www.ec.europa.eu/eurostat/statistics-explained/index.php/Culture_statistics_-_cultural_enterprises)

<sup>35</sup>*Anuario De Estadísticas Culturales (Yearbook Of Cultural Statistics)*. Ministerio de Educación, Cultura, y Deportes (Ministry of Education, Culture, and Sport), 2017. Web. [www.es.calameo.com/read/0000753356d6de6244c72](http://www.es.calameo.com/read/0000753356d6de6244c72)

### 3.7.2. SAM Quantification and Characterisation

The *Yearbook of Cultural Statistics 2016* from the Spanish MECD presents recent information about the number of libraries, archives, museums and other cultural enterprises dedicated to cultural services. It also offers information about the economical magnitudes of these enterprises based on their activity, which can be used to better understand the serviceable available market.

As stated in the Cultural Tourism subsector, the Spanish digitalization rate of the audiovisual contents and services sector in 2015 was 57.8% and its growth has been around 2% each year.

This rate can be used alongside the relevant portions within the TAM of the industry, thus allowing one to understand the percentage of the market that is digital in the market. Using the growth rates, and the assumption of relative uniformity throughout Europe, one can estimate that the digitalization rate in 2013 was 53% and 47% in 2010.

This percentage of digitalization would suggest Digital Cultural Services segment sizes of €153 billion for the EU, €36.1 billion for the UK (2013) and €1.8 billion for Spain in 2010.

### 3.7.3. Market Potential (CAGR)

The *Yearbook of Cultural Statistics* from the Spanish MECD also presents information about the public cultural expense in Spain: in 2012 it was €4.8 billion. This data assists in the evaluation of the overall market, and it appears that the sector declined profusely in 2009, with a small recovery first starting in 2013, but with results yet to be foreseen.

Unfortunately, incomplete information signifies an inability to provide accurate numbers or growth projections in the sector

### 3.7.4. Relation of Cultural Services with the Cultural, Touristic, and/or Technological Sector

The Digital R&D Funds for the Arts' Research Report: *Digital Culture i2014: How arts and cultural organisations in England use technology* states that more than half of the institutions surveyed, 57.6% held temporary exhibitions in 2014.

In terms of frequency, about 52% of the museums surveyed offer educational activities, mostly geared towards children. This is followed by: 32.6% of museums offer courses or seminars, 29.9% hold seminars, and 23.8% hold concerts.

The fastest growing activities adopted by entities dedicated to cultural activities were<sup>36</sup>:

- Providing educational content online
- Creating standalone digital works
- Providing online interactive tours.

In comparing data from 2014 with their activities planned for 2015, those surveyed indicated their participation in the activities listed:

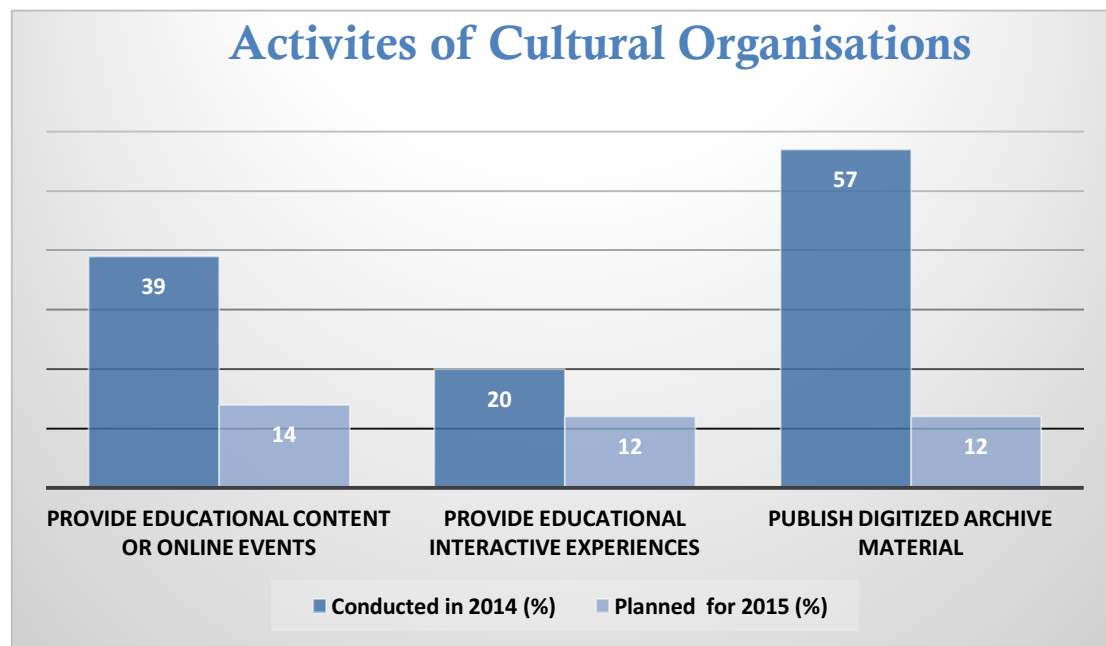


Figure 3 . Distribution of Activities:Percentage of institutions that conducted the activity in 2014 versus the percentage that had the activity planned in 2015.

Unfortunately, it appears that few institutions had plans to continue their activities – however, one may assume that throughout the year, a company may make a more spontaneous decision to engage in the activities.

### 3.7.5. Main Challenges and Opportunities

It is important to clarify that while many may consider a museum to be a part of cultural tourism, complexities arise in the services that occur within a museum, such as the collection and creation of information, the archiving of displays, and so forth. Likewise, the museum is providing a service to all visitors. Thus, for the purpose of this study, museums, and museography, are considered cultural services.

<sup>36</sup> Digital Culture 2014: How arts and cultural organisations in England use technology. Research Report. Digital R&D Fund for the Arts. Available at: <http://www.artscouncil.org.uk/sites/default/files/download-file/Digital-Culture-2014-Research-Report2.pdf>

Arts and cultural organisations are responding to the wider shift in media consumption away from desktops and towards mobile devices.

The most common manifestation of mobile optimisation remains an adaptive or responsive website. Few organisations have a smartphone app, and fewer still have a tablet application or hybrid form.

Cultural turnover is a valid indicator for analysing the impact of the financial crisis that hit the global economy in 2008. In general, the crisis had a substantial impact on turnover within the cultural sector. In 2013, most of the 16 Member States for which data are available had yet to return to 2008 performance levels. Exceptions were Germany, Austria, Sweden and the United Kingdom. Sweden ranked top, with an annual average growth rate (CAGR) of 3.6 %<sup>37</sup>.

While a limited number of countries recorded the occasional sign of recovery during the period from 2008 to 2013, they typically tended to subsequently experience new losses. In France, for example, positive annual growth in 2010 was followed by negative figures until 2013, the last year for which data is available<sup>37</sup>.

*A prominent opportunity for the CrossCult platform appears to be in the activities and technologies used by museums. The product is an opportunity to cultural services to use an adaptive tool in an easy-to-use manner. Likewise, research indicated that popular, and growing, activities included online tours, the creation of digital works, and the presentation of digital and educational content. The unique modules and services of the platform clearly address such needs, suggesting that CrossCult can be an important tool in the industry.*

### 3.7.6. Other Relevant Information

Various types of museums to consider, specifically in Spain, include:<sup>38</sup>

- Archaeological\*
- Contemporary art
- Decorative art
- Fine arts
- Science and Technology
- Natural Sciences and Natural history
- Specialised\*
- Ethnography and Anthropology\*
- General
- Historical\*

The museums marked with a "\*" are deemed priorities for CrossCult expansion

The survival rates for enterprises in the European Union involved in the sector of libraries and museums were as follows: 70% surviving after one year, falling to 45% after three years and

<sup>37</sup>"Cultural Statistics - Cultural Enterprises". *Eurostat - Statistics Explained*. European Commission. 2017. Web. [www.ec.europa.eu/eurostat/statistics-explained/index.php/Culture\\_statistics\\_-\\_cultural\\_enterprises](http://www.ec.europa.eu/eurostat/statistics-explained/index.php/Culture_statistics_-_cultural_enterprises)

<sup>38</sup>"Instituto Nacional De Estadística. (National Institute Of Statistics)". *Instituto Nacional De Estadística. (National Institute Of Statistics)*, 2017. [www.ine.es](http://www.ine.es)

35% after five. The three other cultural sectors analysed here were in tune with the average of total services, with a slight reservation as regards the long-term life expectancy of enterprises in 'creative, arts and entertainment activities' (around a 40% rate survival after five years)<sup>37</sup>.

In most sectors, enterprises that survived the first three years were likely to last a minimum of five, with the noticeable exception of libraries and museums, where the first year of life was quite decisive.

In the UK, museums and their collections are a mixture of public and private, with: 70.2% owned publicly, 27.9% owned privately, and 1.9% a combination of public and private ownership.

Potential clients and stakeholders in this sector include:

- Museums, monuments, and other providers of content
- Cultural Training and Educational Services
- Institutions that use audio and multimedia platforms

### 3.8. Sector Analysis: Education

#### 3.8.1. TAM Quantification and Characterisation

Table 8 Statistics regarding Education: TAM size data (and other size input) obtained during the study are presented as billions of € (B€). This information represents the total value of the sector in a given year. CAGR values available are presented as percentages, representing the percent growth. It is important to notice that the data does not always correspond to the same years.\* *RISNF: Relevant information sources not found.*

Market	GLOBAL	EUROPE	UK	SPAIN
Education	4,088(2012) 6,300(2017) Growth: 9.04% (2012-2017)	672 (2012)	85.2 <sup>39</sup> (2014)	44.97 <sup>40</sup> (2013)
Publication Sector	114(2016)	38 <sup>41</sup> (2017)	3.8(2015)	2.74(2014)

<sup>39</sup> "Education Spending". *Institute For Fiscal Studies*. Institute for Fiscal Studies. 2015. Web. [www.ifs.org.uk/tools\\_and\\_resources/fiscal\\_facts/public\\_spending\\_survey/education](http://www.ifs.org.uk/tools_and_resources/fiscal_facts/public_spending_survey/education)

<sup>40</sup> Alvarez, Pilar. "El Gasto Educativo Cae 8.920 Millones Y Baja A Niveles De Hace 25 Años (Education Spending Falls 8,920 Millions To Levels From 25 Years Ago)". *El País*, 2016. Web. [www.politica.elpais.com/politica/2016/06/22/actualidad/1466585749\\_283595.html](http://www.politica.elpais.com/politica/2016/06/22/actualidad/1466585749_283595.html)

<sup>41</sup> Federation of European Publishers. *The Book Sector In Europe: Facts And Figures*. Federation Of European Publishers, 2017. Web. [www.fep-fee.eu/The-Federation-of-European-844](http://www.fep-fee.eu/The-Federation-of-European-844)

Digital Books Sector	14.5(2014) 22(2017) Growth: 14.91%(2014-2017)	2,47 (2017)	0.6(2015) Growth: 8.67%(2013-2015)	0.14 (2014)
Smart Education	17.9 (2016) 54.2 (2021) Growth: 24.84% (2016-2021)	(RISNF)	(RISNF)	(RISNF)

One of the most prominent industries in the world, the education sector finds value from both government expenditures as well as private investments. In 2012, the industry, consisting of K-12 education, Post-Secondary Education, as well as Corporate and Government Education, had a value of approximately €4,088 billion. Expectations indicate that this number could increase to €6,300 billion by 2017.<sup>42</sup>

Within Europe, it is difficult to estimate the total industry value of both private and public expenditures on education, due to the availability of statistics, thus statistics on public expenditures will be used. In the public sector in 2012, the combined governments of the European Union spent approximately €672 billion on education, excluding childhood development.<sup>43</sup> Both Spain and the United Kingdom saw significant decreases in expenses compared to 2009 and 2010 at the beginning of the global crisis, perhaps a sign of the reaction of the government.

The publication sector is one that is deemed broad, due to the inclusion of a wide number of indicators, such as books, magazines, newspapers, textbooks, and so forth. For the purpose of this study, most statistics are based on the inclusion of books, electronic books, and textbooks.

In 2016, the global book publishing industry experienced revenues of €114 billion, led primarily by general interest books, educational and learning materials and scientific and professional publications<sup>44</sup>. Although the precise percentage of this number attributed to eBooks is under debate, one estimate predicts that the value of the eBook sector in 2014 was €14.5 billion, and could grow to €22 billion in 2017.<sup>45</sup>

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<sup>42</sup> Cavanagh, Sean. "Global Education Market Tops \$4 Trillion, Analysis Shows". *EdWeek Market Brief*. Editorial Projects in Education, Inc. 2013. Web. [www.marketbrief.edweek.org/marketplace-k-12/size\\_of\\_global\\_e-learning\\_market\\_44\\_trillion\\_analysis\\_says/](http://www.marketbrief.edweek.org/marketplace-k-12/size_of_global_e-learning_market_44_trillion_analysis_says/)

<sup>43</sup> "Educational Expenditure Statistics". *Eurostat - Statistics Explained*. European Commission. 2016. Web. [www.ec.europa.eu/eurostat/statistics-explained/index.php/Educational\\_expenditure\\_statistics](http://www.ec.europa.eu/eurostat/statistics-explained/index.php/Educational_expenditure_statistics)

<sup>44</sup> Wischenbart, Rüdiger. *The Business Of Books 2016: Between The First And The Second Phase Of Transformation*. Frankfurt Book Fair Business Club, Frankfurt, 2016. Web. [www.buchmesse.de/pdf/white\\_paper\\_business\\_of\\_books\\_june\\_2016.pdf](http://www.buchmesse.de/pdf/white_paper_business_of_books_june_2016.pdf)

<sup>45</sup> The Global e-Book Market Valued at \$14.5 Billion. Good EReader

The Federation of European Publishers estimates that approximately 6% to 7% of the publishing sector in Europe is attributed to eBooks. Using 6.5% as an estimate, this indicates that the subsector is worth approximately €2, 47 billion.<sup>46</sup>

Digital sales account for 17 percent of UK publishers' overall sales, with a value of up to €0.642 billion in 2015 (compared to €0.653 billion in 2014, and €0.587 billion in 2013)<sup>44</sup>. As such, the publication sector in the United Kingdom in 2015 is valued at approximately €3.8 billion.

The Federation of Editors of Spain predicts that the value of book sales on the domestic and foreign markets from Spain totals €2.74 billion, with 5% of that number attributed to digital sales. As such, the value of the eBook sector is approximately €0,135 billion.<sup>47</sup>

Within higher education, nearly 1.5 million individuals are employed.<sup>48</sup>

### 3.8.2. SAM Quantification and Characterisation

With the rise of digital technology, large publishers are beginning to design their own online platforms and creative applications for customer use. Others are exploring the use of educative platforms. Due to such competition, primary stakeholders would include small editors and education entities that can benefit from the ease of a new technological platform.

In analysis of the serviceable available markets, smart education is a primary consideration. The global smart education and learning market size is expected to grow from €17.9 billion in 2016 to €54.2 billion by 2021, at a Compound Annual Growth Rate (CAGR) of 24.84%.

It is also advisable to explore digital textbooks, however little data currently exists about the industry due to the relatively recent popularity

### 3.8.3. Market Potential (CAGR)

The vagueness and incomplete information of the sector makes it difficult to accurately project growth rates for the majority of indicators. The global education market is expected to experience a 9.04% compound annual growth rate until 2017, while the smart education and learning market CAGR is expected to be 24.84% from 2016 to 2021.

Globally, the eBook market between 2014 and 2017 was expected to experience a CAGR of 14.91%. In prior years, the UK Digital book market had a growth rate of 8.67% between 2013 and 2015.

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<sup>46</sup>Federation of European Publishers. *The Book Sector In Europe: Facts And Figures*. Federation Of European Publishers, 2017. Web. [www.fep-fee.eu/The-Federation-of-European-844](http://www.fep-fee.eu/The-Federation-of-European-844)

<sup>47</sup>"Statistical Data". *The Federación De Gremios De Editores De España (Spanish Association Of Publishers Guilds)*, 2014. Web. [www.federacioneditores.org/ingles/datos-estadisticos.php](http://www.federacioneditores.org/ingles/datos-estadisticos.php)

<sup>48</sup>The Higher Education Industry in Europe. *SIS International Research*. SIS International Research. Web. <https://www.sisinternational.com/the-higher-education-industry-in-europe/>



### 3.8.4. Education and Technology

Technology is currently an essential aspect within education, and the ed-tech industry is booming. Tablets, computers, as well as other smart devices are now increasingly popular in the classroom. With the current expansion of technology, there exists a high possibility that new innovations will continue to play a prominent role in education

The cloud, for example, is seen as an important tool in Smart Education. Universities and other educational institutions will simply need the hardware to access the collection of information and digital content, and thus can avoid the installation of software.

*CrossCult, as a technological platform, offers the opportunity for educational institutions and organisations to continue to integrate their content and services online and through digital means. A primary goal of the platform is the reinterpretation of culture and history – this also suggests the increased opportunity of individuals to access content and to learn in creative, but helpful ways.*

### 3.8.5. Main Challenges and Opportunities

Implementation of technology in education remains a major challenge for the future. Institutions as well as teachers are still adjusting with the evolving role of educators in society, as well as how to balance customised plans and models with state or government requirements. There also remains the long-standing cultural challenge of the habits, knowledge, and routines of educators.

A potential benefit of the platform with regards to this challenge is the level of customisation and control provided to users. Educators can use the platform at a pace they feel comfortable with, and can use it as a complementary tool to other strategies and teaching methods.

Recent research indicates that while some educators have started to use new technology in their classrooms, others are reluctant, or slow, to transform their classroom experience.

While the education sector can initially seem large, the size and potential is limited by the presence of online platforms and creative applications, such as Moodle, Blackboard, and Plataforma Eleven. Major publishers, as well as outside resources, are developing these tools in order to ease the transition to a more technologically based education, but also provide their own content. Likewise, there remains a wide variety of alternative platforms for digital content and development.

One must also consider that compatibility of CrossCult with large actors in the industry, such as higher education – although CrossCult can be an educational tool, it may not automatically be seen as the most adoptable product, due primarily to the prominence and integration of competitors. It will be important to market the variety of services offered by the platform, and the large amount of different uses, from content creation, to interactive experiences.



Innovation is a constant presence in the world of publications. Predictions in Spain indicate that start-ups in the sector will make investments exceeding €500 million, and contribute to the creation of at least 7,000 new jobs within the next four years.

### 3.8.6. Other Relevant Information

Potential stakeholders and clients include:

- Educational institutions seeking to enhance technology
- eLearning platforms
- Educational businesses and associations
- Publishers seeking to digitalize content

## 3.9. Sector Analysis: Smart Cities

Smart Cities are cities built on ‘smart’ and ‘intelligent’ solutions and technology that will lead to the adoption of at least 5 of the 8 following smart parameters—smart energy, smart building, smart mobility, smart healthcare, smart infrastructure, smart technology, smart governance/smart education, and smart citizen.

### 3.9.1. TAM Quantification and Characterisation

The global Smart Cities market size is estimated to grow from €288.6 billion in 2015 to €701 billion by 2020<sup>49</sup>.

While CrossCult may ultimately be able to appeal to all aspects of Smart Cities, this report will focus on the smart governance and smart education subsectors. While other sectors, such as technology, and the smart citizen status, also seem highly relevant, the governance and education sectors connect closely to other industries explored in this analysis. Smart governance and education together comprise 24.6% of the total market of Smart Cities.

The key characteristics of these subsectors include:

- **eGovernment:** Smart governance involves the actions, tools, policies, and services of a government in which a primary goal is to encourage environmentally friendly and intelligent solutions. It also suggests that the government provides services and administrative functions online and using technology.

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<sup>49</sup>Frost & Sullivan. *Strategic Opportunity Analysis Of The Global Smart City Market*. Frost & Sullivan. Web. [www.egr.msu.edu/~aesc310-web/resources/SmartCities/Smart%20City%20Market%20Report%202.pdf](http://www.egr.msu.edu/~aesc310-web/resources/SmartCities/Smart%20City%20Market%20Report%202.pdf)

- **eEducation:** Smart education suggests that a city integrates technology in educational institutions, and promotes the use of eLearning sources – examples include online classes, technological software, the use of devices, and so on.

A fundamental aspect of the Smart Cities concept is the Internet of Things – the term referring to the new level of connectivity with the Internet of various aspects of a modern society – cars, buildings, sensors, lights, meters, and so forth. . The integration of technology in society allows for a more robust sharing of data and knowledge, and affects nearly all parts of society. The economically friendly LED lighting system is considered part of the IoT, as is the concept of a “smart grid”, which can lower the excess consumption of resources in a society<sup>50</sup>. Cities will use the data collected in order to improve their performance in the various aspects of a Smart City, such as governance, the environment, the economy, infrastructure, and better the standard of living in society. Relevant information states that the Internet of Things (IoT) in Smart Cities market is estimated to grow from €48.04 billion in 2015 to €137.5 billion by 2020<sup>51</sup>.

### 3.9.2. SAM Quantification and Characterisation

As a result of the scarce level of data on a country by country level available, information about the market and projections will be reliant upon data from the global level, with prominent usage of the Smart Governance and Smart Education subsector.

Using this data, it is possible to establish that the Serviceable Available Market (Smart Governance and Smart Education subsector) had a value of €69.26 billion in 2015 and a projection for over €168.24 billion in 2020.

Furthermore, comparing information regarding the IoT for Smart Cities’ market with the relevance of Smart Governance and Smart Education in the market, a smaller SAM of €11.54 billion in 2015 can be identified, with a projection of €32.28 billion in 2020.

The use of CrossCult in Smart Cities depends heavily on the prominence of culture and history present in each city. Thus, the potential of the sector is limited to the level of cultural heritage and capacity for digitalization.

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<sup>50</sup>Meola, Andrew. "How Smart Cities & IoT Will Change Our Communities". *Business Insider*, 2016. Web. [www.businessinsider.com/internet-of-things-smart-cities-2016-10](http://www.businessinsider.com/internet-of-things-smart-cities-2016-10)

<sup>51</sup>MarketsandMarkets. *Internet Of Things (Iot) In Smart Cities Market Worth 147.51 Billion USD By 2020*. 2016. Web. [www.prnewswire.com/news-releases/internet-of-things-iot-in-smart-cities-market-worth-14751-billion-usd-by-2020-568599431.html](http://www.prnewswire.com/news-releases/internet-of-things-iot-in-smart-cities-market-worth-14751-billion-usd-by-2020-568599431.html)

### 3.9.3. Market Potential (CAGR)

More specifically, the Internet of Things category in the Smart Cities market will experience a CAGR of approximately 23.2% between 2015 and 2020.

With these estimations, the ideal SAM, the IOT in Smart Governance and Smart Education, will have a CAGR of 21%.

Table 9 Statistics regarding Smart Cities: TAM size data (and other size input) obtained during the study are presented as billions of € (B€). This information represents the total value of the sector in a given year.

CAGR values available are presented as percentages, representing the percent growth. It is important to notice that the data does not always correspond to the same years.

Market	GLOBAL
Smart Cities	288.6 (2015)- 701 (2020) Growth: 19.4% (2015-2020)
Smart Governance and Smart Education subsector	69.26 (2015)- 168.24 (2020) Growth: 21% (2015-2020)
Internet of Things (IoT) in Smart Cities	48.04 (2015)- 137.5 (2020) Growth: 23.2% (2015-2020)
Internet of Things within Smart Governance and Smart Education subsectors	11.54 (2015)- 32.28 (2020) Growth: 21% (2015-2020)

### 3.9.4. Relation of Smart Cities with the Cultural, Touristic, and/or Technological Sectors

The concept of a Smart City is intrinsically related to technology. However, the tools of Smart Cities are beginning to assist in the preservation and promotion of culture. In some areas of Europe, cultural heritage in the context of Smart Cities is managed by a new technological solution called Smart Heritage. The tool aims to facilitate the protection, control, and management of cultural elements within a Smart City. Focuses include conservation, security, and efficiency. Smart Heritage attempts to integrate technology such as smart management tools and tourist applications to care for its partner cities. The application demonstrates the possibility for a Smart City to use outside resources to continue to integrate technology and smart software with essential aspects of society.

### 3.9.5. Main Challenges and Opportunities

Technological advancements in Information and Communication Technology (ICT) and growing demographics & hyper-urbanisation are the major driving factors for the market. Throughout the world, cities are increasingly adopting 'smart' solutions in an effort to improve services

such as construction, transportation, utilities, and energy. Through such actions, cities are improving their standard of living, efficiency, economic stability, and environment. With the rise of Smart Cities, there exists individual businesses interested in providing such smart solutions, and thus these companies can serve as potential partners in the future.

Due to differences in the definition of a Smart City by different institutions, it is difficult to classify exactly how many there are or will be in the near future. One firm, IHS technology, cites that though only 21 cities met their criteria in 2013, the number will increase to 88 globally in 2025, with 31 from Europe.<sup>52</sup> EURACTIV suggests there are currently 240 cities in Europe with over 100,000 individuals that share at minimum some qualities of Smart Cities.<sup>53</sup>

A common vision for urban development today is the integration of information and communication technology with the Internet of Things in order to best use the resources and assets of a city. There exist over 200 projects in Smart Cities across the world that provide opportunities for IoT service providers, platform providers, and consultants.

Challenges in the industry include its novelty. As the concept is still growing, the market size is limited, and uncertainties remain regarding its future success. However, the industry is rapidly expanding, mitigating some of these concerns.

*Smart Cities present a variety of opportunities with regards to potential integration with the CrossCult platform. CrossCult can offer a unique method for various components of a community to engage with one another in a manner that is beneficial to all. As a product with social interaction features, this could permit citizens to interact, or for citizens and city officials to communicate with one another. Other possibilities include the abilities that city officials will have regarding the organisation and visualisation of content, as well as the manners in which platform services could contribute to the efficiency of the city. Context awareness tools, using weather and traffic, in addition to machine reasoning elements, can all provide the necessary aid to a city looking to further develop its technological impact.*

### 3.9.6. Other Relevant Information

A prime example of a Smart City is Barcelona, Spain – in 2015, it was named the “World’s Smartest City” by a research firm. Cited examples of the city’s behaviour include the use of electric vehicles, “intelligent networking of energy and water supplies...in order to improve the quality of life and protect the environment”, as well as objectives by the city to improve

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<sup>52</sup> IHS Markit. *Smart Cities To Rise Fourfold In Number From 2013 To 2025*. 2014. Web. [www.technology.ihs.com/507030/smart-cities-to-rise-fourfold-in-number-from-2013-to-2025](http://www.technology.ihs.com/507030/smart-cities-to-rise-fourfold-in-number-from-2013-to-2025)

<sup>53</sup> “How Many Smart Cities Are There In Europe?”. EURACTIV. EURACTIV 2017. Web. [www.euractiv.com/section/digital/infographic/how-many-smart-cities-are-there-in-europe/](http://www.euractiv.com/section/digital/infographic/how-many-smart-cities-are-there-in-europe/)

transparency and access for the administrative agencies.<sup>54</sup> In the United Kingdom, London is considering innovations to parking, electric cars, as well as bike-sharing programs

In Smart Cities, use of the Internet of Things can suggest correlation with economic stability as well as efficient usage of natural resources. Such success can lead to smart investments in human and social capital, along with the modernisation of infrastructure. The combination of these improvements will contribute to general improvements in the standard of living for its citizens. Various cities in North America, as the largest market for the Smart Cities platform and integration of the IoT, are good examples of the success of the use of technology.

The exploration of Smart Cities has identified several potential target audiences and stakeholders;

- National and State Governments
- Software Vendors
- Investors and Venture Capitalists
- Providers of IT Solutions and Telecom Services
- Municipal Authorities
- System Integrators
- Cloud Platform Vendors
- Providers of Training and Education

### 3.10. Supplementary Research

Mobile projects remain the most popular method of digitalizing content and visualizing culture in innovative methods<sup>55</sup>. The main focus of a mobile device is to be a tool for visitor engagement, while also making content more accessible and increasing visitor interaction. Other popular objectives for a mobile project include attracting new visitors and improving publicity and reputation.

The *Museums & Mobile Survey 2013* offers a list of 23 key points of relevance when developing a mobile project. The most relevant and prominent are included below.

- While visitor engagement is the primary objective of mobile devices, the use of a project for additional revenue is considered the least important reason.
- The organisations that provide mobile experiences do not believe that their audiences are frequent users of technology or social media.
- Standard goals and client profiles for mobile projects are not common, as every organisation has a unique objective and characteristics.
- Current trends suggest a focus on developing interactive and social-related tours as opposed to solely audio guides.

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<sup>54</sup>"Why Cities Are Getting Smarter". *Siemens*. Siemens S.A. 2015. Web. [www.siemens.com/innovation/en/home/pictures-of-the-future/infrastructure-and-finance/smart-cities-facts-and-forecasts.html](http://www.siemens.com/innovation/en/home/pictures-of-the-future/infrastructure-and-finance/smart-cities-facts-and-forecasts.html)

<sup>55</sup>Tallon, Loic. *Mobile Strategy In 2013: An Analysis Of The Annual Museums & Mobile Survey*. Pocket-Proof, 2013. Web. [www.es.slideshare.net/LoicT/mm-survey-2013-report-v1](http://www.es.slideshare.net/LoicT/mm-survey-2013-report-v1)

- Larger organisations provide interactive experiences on multiple platforms, though primarily mobile applications. Smaller organisations suggest mobile websites are preferable.
- Institutions are using internal resources to develop content and operational elements of mobile projects. Technology-related tasks are more likely to be outsourced.
- The size of an organisation does not determine the aspects of a project that are completed internally or externally.
- Most businesses allow for the mobile project to be free for use to visitors.
- The most difficult phases of a project occur after the project is launched – organisations should have a clear plan to confront potential problems.

**To summarize,** the most popular objective remains to experiment with visitor engagement with the permanent collections, offering free and wide-ranged deeper experiences to young people. When visitors pay for the mobile experience, it is likely that the experience is more traditional in style, such as audio guides. There is also a shift to interactive mobile experiences, with particular focus on mobile applications, linked with social network sites. Smaller institutions identify mobile web as a playful experience sites and as their preferred technology platform for mobile experiences.

However, museums and performing groups (particularly the smaller ones), do not appear to be sharing equally in the potential benefits of digital technology. These groups are adopting new technologies at a slower pace, and fewer are seeing major impacts from digital technology on their overall mission.

When this same data is analysed in regards to annual institutional attendance, it is clear that mobile experiences developed by institutions with higher annual attendance are being made available on multiple technology platforms. By contrast, smaller institutions are more focused on mobile web sites as a means of delivering their mobile experiences, rather than apps. Taken as a whole, cultural institutions are selecting the technology platforms for their mobile experience based on a desire to make it accessible to as many visitors as possible.

It appears that an increasing number of institutions are creating and using mobile experiences that are both engaging and interactive for their clients. While audio tours remain popular in many organisations, businesses are exploring different strategies to connect with their audience, including the integration of social media with applications.

Institutions are looking for long term solutions, such as content for a staple collection of a museum, as opposed to content for short-term projects.

Ultimately, the size of an institution does not make a considerable difference with regards to whether they create their own mobile projects, or use outside resources. This decision is affected by the needs and wishes of the business.

Taken together, the results of the survey point to an arts and cultural sector in England that is increasingly comfortable with digital technologies, and in which many are seeing tangible benefits in terms of audience engagement and financial performance.

Institutions are using internal resources to develop content and operational elements of mobile projects (project planning, script development and production, marketing, content management and distribution/management). Technology-related tasks, such as development, application publication, and device integration, are more likely to be outsourced. Institutions are aware that the most difficult institutional challenge regarding mobile technology is encouraging visitors to use the mobile experience and therefore, marketing efforts are a key component in encouraging visitors in this direction.

In the development of CrossCult products, it is important to consider the concepts many small enterprises consider the barriers to success and digital aspiration

- Lack of funding allocated to digital projects
- Lack of in-house staff time
- Difficulty in accessing external funding for digital projects
- Lack of in-house skills/knowledge Slow / limited IT systems or networks
- Lack of expert advice. No senior manager with a digital remit
- Lack of in-house confidence
- Lack of suitable external suppliers / freelance staff
- Lack of control over our IT systems/infrastructure

These barriers offer insight about the limitations possible future clients have, and offer ideas about how to design those future products in order to help the clients avoid these issues.

### 3.11. Conclusions

Our thorough analysis of both the markets as well as sectors of interest made it clear that there is potential for a multifaceted technological platform. The growth of various industries, in combination with the vast number of market opportunities, suggests that digital content can serve an important role in modern culture and society. Throughout Europe, but also specific countries, such as Spain and the United Kingdom, there appears to be a suitable environment for an increase in the relationship between technology and education, culture, and tourism.

The industry analysis demonstrated the value and potential growth in each sector, in addition to qualitative research regarding the opportunities and threats the CrossCult platform may encounter in each sector. This information will be essential in the determination of market entry, but will also be supplemented by further primary research and analysis.

It appears that each sector has both industries of high potential, but also of little relevance. Thus, it seems the program will succeed most in specific areas of each sector, with consideration as to the challenges the project might face. For example, CrossCult must remain aware of

the present status of its collaborators and any potential difficulty their partners may face, with regards to economic status and technological capabilities. Likewise, it is advisable that the project focuses on specific subsectors prior to a broader appeal of an entire industry.

In comparing the industries with one another, it appears that the initial prioritisation of sectors remains mostly applicable. As one of the largest sectors, Cultural and Creative Industries naturally presents numerous opportunities for the CrossCult platform. However, it is important to observe the complexities within the industry. Some activities, such as design, may be more difficult to integrate with, due to unique qualities and needs of the industry. On the other hand, characteristics of the application have fundamental similarities with gaming applications, and should appeal to advertisers. Although Cultural Tourism and Cultural Services often overlap, differences remain, specifically in terms of serviceable markets. Cultural Institutions, such as museums, monuments, and other travel attractions are all industries in which the CrossCult platform can succeed. Such industries currently use technology to enhance a client experience, and as research demonstrates, are continuously looking for new ways to innovate. Other service providers, including tourism agencies, can provide beneficial partnerships for the platform.

Education remains a relevant sector as it is a fundamental aspect of the platform – educating users through the content, location, and other services of the application. However, challenges exist due to information and the presence of competitors suited for the industry. As one of the newest industries, the concept of Smart Cities is rapidly growing. The goals of Smart Cities align with those of CrossCult, including the integration of technology in various activities. Similar to other sectors, there does appear to be parts of a Smart City in which the CrossCult platform may not be entirely relevant. While CrossCult may aid in the development of cities, education, governance, and touristic functions, it may not find the same success in areas such as health care, or infrastructure. The challenge arises in that Smart Cities largely try to manage the various function areas, such as education and healthcare, as one, as opposed to separately, thus entrance into the market may prove difficult. At this time, CrossCult must continue to explore how the platform could be useful for all aspects of a Smart City.

As the development of the platform and business model continues, future research should continue to analyse the benefits of the various industries, specifically as they align with potential business strategies and marketing tactics. Research thus far has illustrated the value of each industry, as well as the opportunities present for CrossCult. Although no single sector appears to entirely align, individual industries, such as museography and advertising appear to be suitable markets. The growth of such industries, in combination with the advancement of culture and technology, illustrates a market that is open to a platform that can aid organisations and individuals. These stakeholders can use the platform to accurately and successfully integrate technology with information and culture, and develop a unique experience within their respective industries.



## 4. Phase III: Market Environment Analysis

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### 4.1. Introduction and Goals of the Market Environment Analysis

The ability of an individual to enjoy the cultural environment of a city or region is paramount to a positive travel experience. The new presence of technology in society has encouraged greater adaptation on behalf of cultural services and touristic industries. Such industries have explored the integration of technological software, mobile applications, and other service providers in order to better refine their offerings.

Over time, it has become clear that there are a variety of manners in which businesses provide their services to others, with differences in cost, accessibility, ownership, integration of other tools, and so forth.

The method in which a business provides its service or product to clients is fundamental for the future success of the company, and thus requires extensive research and planning.

The **Market Environment Analysis** is devoted to building upon prior research and developing information regarding business models present in the market. It consists of a brief analysis of various potential business models, followed by a thorough competitive analysis across each industry and various services. The competitive analysis includes an assessment of the business models of competitors, thus providing additional information as to the methods that appear to be successful. The competitive analysis, combined with research of business models and the previous research of industries, will result in an illustrative depiction of the potential markets

### Methodology

In research into competition and market trends, seven business models were identified as popular in technology products as well as cultural settings. They are as follows:

- Licensing & Maintenance
- Contract model
- Advertisement
- Use of Data
- Software as a Service
- Added Services
- Sponsorship

The report contains an analysis of the appropriate usage of each model, followed by potential uses in the CrossCult platform.

The business model analysis is followed by consideration of the competition in the market. At this time, the precise product selection and offerings of the CrossCult platform remain in development. Key functions are expected to include user profiling, semantic reasoning, content visualisation, social interactions, context and location tools, organisational and management tools, recommendations, and more. Such categories **can** be grouped into Crowdsourcing Services, Social Network Services, Personalisation Services, and Data Management Tools. In order to simplify the search for competitors, the competitive analysis will slightly modify these categories in order to reflect common services present within the market environment. These changes are as follows:

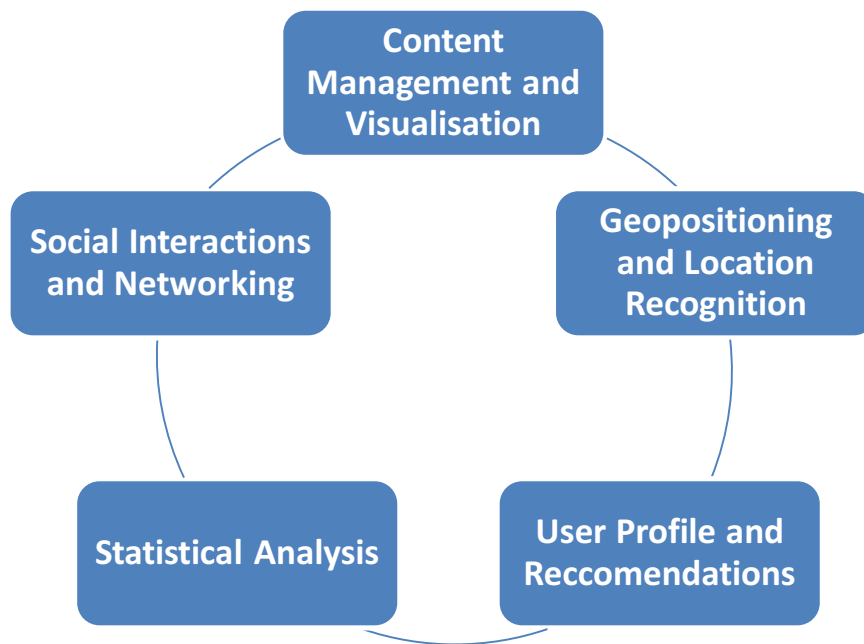


Figure 4 Functions and services of the Competitive Analysis.

Although these categories do not fully encompass the entirety of the services of the CrossCult platform, or the detail with which they are enacted, it is precisely such unique and detailed qualities that provide CrossCult with a competitive advantage.

The competitive analysis of the market begins with the identification of direct competitors that broadly address similar audiences as CrossCult. The competitive analysis is then segmented into two, more detailed parts: an analysis of competitors for the principal categories identified above, as well as analysis of competitors for the various industries of interest. Each competitor also is analysed based on their business model, in order to understand their financial viability and competitive offerings.

The analysis of competitors considers the following factors:

1. Definition of the product/ service and the tools it offers
2. Identification of the functions it offers or lacks, in comparison with CrossCult, specifically with relation to culture and knowledge.
3. Analysis of the tools/services/variables relevant to the design of CrossCult products
4. Analysis of the potential value CrossCult can add regarding a product or service
5. Extraction of the available information (if accessible) about business and revenue models, pricing and commercial strength.

#### 4.2. Potential Business Models and Sales Strategies

Prior to analysing the competition, it is important to understand the operative strategies and business models that are common in the relevant industries, but also the business world in general.

Through the identification of business models, common tactics will be identified. A brief analysis will also be conducted as to how the CrossCult platform could function on the business model, with examples of integration.

#### 4.2.1. Licensing & Maintenance

Within technology, the licensing model is a strategy in which a technology or software can be licensed to other enterprises, who can use the technology and information in a final and new product. A popular option with highly sophisticated products, there exists two different licensing options: a perpetual, one-time purchase that provides the buyer with permanent authority, or a subscription model, in which a buyer must renew the license at the end of a period of time.<sup>56</sup>

However, the licensing model presents challenges in that it is difficult to earn a broad client base – typically, there must be a level of trust between service providers and clients in the licensing model due to the idea that the information and technology must remain confidential. Thus, it is hard to establish a large standing in the market and earn recognition amongst potential clients. At the same time, the use of licensing offers increased market support and opportunities for awareness.

**Integration with CrossCult:** The consortium can provide the authority for a museum, or cultural institution to integrate data and technology into their own unique products, while still receiving assistance from CrossCult developers. Alternatively, CrossCult can treat the licensing & maintenance method as a normal sale, in which any user of the platform or content must obtain a license from CrossCult regarding usage and protection of information.

#### 4.2.2. Software as a Service (SaaS)

A form of cloud computing, the Software as a Service (SaaS) model is a simple and user-friendly option for clients who maintain smaller resources than others. According to Salesforce, the idea of SaaS permits for enterprises to access content over the Internet, as opposed to receiving the software. Thus, the client is not required to manage the complexities of the application, and rather can use select portions of the platform. However, the provider of the service maintains authority over factors such as the management of the service, security, performance, and so forth. Today, it remains one of the most popular strategies for businesses to utilise.<sup>57</sup>

One of the most popular SaaS models is Salesforce.com, which manages a series of applications and products related to customer relationship management.

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<sup>56</sup>"The Licensing Revenue Model For Technology Products". *MaRS*. MaRS Discovery District, 2013. Web. [www.marsdd.com/mars-library/licensing-as-a-revenue-model-for-technology-products/](http://www.marsdd.com/mars-library/licensing-as-a-revenue-model-for-technology-products/)

<sup>57</sup>"What Is Software As A Service (SaaS)". *Salesforce*. Salesforce.com Inc. 2017. Web. [www.salesforce.com/saas/](http://www.salesforce.com/saas/)

According to Transparency Market Research, the SaaS market in 2014 was valued at €22.13 billion, with the expectation of a 27.90% compound annual growth rate over the next several years to a value of €152.77 billion in 2022.<sup>58</sup>

Related to SaaS is the concept of a Platform as a Service, (PaaS), in which a provider sells a platform and basic infrastructure to outside developers, who can customise it in a more unique way. Much like Software as a Service, the buyer does not have to be concerned with areas such as security and safety, but does maintain access to parts of the software.<sup>59</sup>

The SaaS model and the Licensing & Maintenance model do share similarities, and it is at times difficult to differentiate the two. Often, a Licensing model refers to the ability of the client to physically access the software on their own devices or platforms, whereas the SaaS model requires clients to use the software, with limitations, as provided by a vendor.

Two common variations and methods of implementation for Software as a Service models are as follows:

#### **4.2.2.1. Contract Model**

In a contract form, the provider and final user can negotiate a contract with specific provisions, or work together to customise a product that best fits the specific needs of the client. The contract will cover concerns regarding: price, length of time of use, service provided, time of delivery, and so forth. A contracted product permits a level of customisation not accessible in the general market.

A contract can include aspects of both Licensing & Maintenance models as well as the SaaS model, in terms of the access to software. However, the main purpose of the model is the ability to offer a personalised product to each and every client.

#### **4.2.2.2. Added Services**

Investopedia describes Value Added as the enhancement a company gives its product or service before offering the product to customers. It is an additional benefit that is not considered to be a core offering of the original and homogeneous product.<sup>60</sup> While added services may bring a higher price to the client, he or she can receive new flexibility and assistance. In a period of increasing competition, the “value” of a product maintains significance in the minds

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<sup>58</sup>Transparency Market Research. *Software As A Service (SaaS) Market - Global Industry Analysis, Size, Share, Growth, Trends And Forecast 2015 - 2022*. 2015, [www.transparencymarketresearch.com/software-service-market.html](http://www.transparencymarketresearch.com/software-service-market.html)

<sup>59</sup>Joshi, Sunil. "What Is Platform As A Service (Paas)? -". *Thoughts On Cloud – IBM*. IBM, 2014. Web. [www.ibm.com/blogs/cloud-computing/2014/02/what-is-platform-as-a-service-paas/](http://www.ibm.com/blogs/cloud-computing/2014/02/what-is-platform-as-a-service-paas/)

<sup>60</sup>"Value Added". *Investopedia*. Investopedia LLC. Web. [www.investopedia.com/terms/v/valueadded.asp](http://www.investopedia.com/terms/v/valueadded.asp)  
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of consumers. Tiered payment systems are often considered to follow an added services model, in which there are multiple offerings of the same basic product.

The size of the industry that CrossCult is considering entering assures that there will be companies of varying resources – some may be unable to use CrossCult to its fullest potential, due to perhaps the inability to create or manage enough content. The CrossCult team can take advantage of this opportunity and look at options for completing such work for the smaller enterprises.

A possible solution is offering a basic version for a minimal price, an enhanced version for slightly more, and a full version with all provided features for a top fee, providing organisations of different sizes with appropriate options.

**Integration with CrossCult:** The consortium can develop an online platform with minimal features, or can create a second, smaller version of the original product. CrossCult can also market the platform itself as a user-friendly option without the need for the more burdensome development or maintenance, but with the tools to allow smaller organisations and individuals to customise and create a successful application for their needs.

Due to the wide variety of potential clients that CrossCult may service, a contracted and customised product may serve as a more appealing option. The organisation or business can specify their requirements and needs, and the CrossCult platform can be adapted to fulfil such requirements. Contracts can also specify time of production, quantity needed, and so forth.

The size of the industry that CrossCult is considering entering assures that there will be companies of varying resources – some may be unable to use CrossCult to its fullest potential, due to perhaps the inability to create or manage enough content. The CrossCult team can take advantage of this opportunity and look at options for completing such work for the smaller enterprises.

A possible solution is offering a basic version for a minimal price, an enhanced version for slightly more, and a full version with all provided features for a top fee, providing organisations of different sizes with appropriate options.

#### 4.2.3. Advertisement

While the prior explained models are in reference to the initial purchase or model of a service, there exist other streams of revenue for a technology or application. Advertising, in which firms can purchase space on the application for a set fee, is a new option to consider. Potential models to explore include a cost per click, in which a brand would pay for each click on the advertisement, or on an impression model, where a brand would pay a set amount for every set number of views of the advertisement.

A 2016 study conducted by HIS Inc. suggested that by 2020, in-app advertising revenue may total €49.69 billion <sup>61</sup>

**Integration with CrossCult:** The CrossCult platform aims to target a diverse variety of organisations and institutions – cities, museums, and universities are all potential markets. As such, there exists an opportunity for other businesses to advertise, based on location or industry, and for CrossCult to monetize the platform in multiple ways. CrossCult must provide the available space on the application, as well as the ability for users to purchase different options.

#### 4.2.4. Sponsorship

A non-conventional model for purchasing, sponsorship as a payment form is a type of non-monetary compensation. The primary purpose behind using sponsorship as a valid form of payment is to crease the reputation of the brand. Partnerships with non-profit organisations, or institutions focused on social enterprise, are popular areas in which sponsorship can be viewed profitably.

Likewise, sponsorship can also include sustenance through a network of donors and supporters, for example, governments, associations and consortiums, private businesses, and so forth. In this model, the cost of operations will be covered by said organisations, while sponsors would also receive a share in profits.

**Integration with CrossCult:** CrossCult is entering into several industries where it is difficult to earn the needed name recognition. Associations with well-known names in the industry can provide potential clients as well as contribute to the popularity of the project.

The support in funding of stakeholders in the industry can be a valuable asset for the tool – a network of supporters, such as museums or tourism enterprises, can assist CrossCult in its distribution of the project. However, CrossCult would need to add certain aspects that make sponsorship more enticing.

#### 4.2.5. Use of Data

In the digital age, data and the information that a firm collects can be an important source of revenue and value for a company. According to director of research at Gartner, “Customer information has always been central to any CRM strategy, but the growing wealth of information from digital channels — from social media, location and context-sensitive data collected from mobile, and the [Internet of Things](#) (IoT) — radically expands the scope of the 360-degree customer profile.” <sup>62</sup> A company can earn value on data by directly selling it, or by using the data for new products and services.

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<sup>61</sup>IHS Inc. *Mobile Native Advertising Drives \$53 Billion Revenue Boom, IHS Says*. 2016. Web. [www.technology.ihs.com/576340/mobile-native-advertising-drives-53-billion-revenue-boom-ihs-says](http://www.technology.ihs.com/576340/mobile-native-advertising-drives-53-billion-revenue-boom-ihs-says) .

<sup>62</sup>Moore, Susan. "How To Monetize Your Customer Data - Smarter With Gartner". *Smarter With Gartner*. Gartner, Inc., 2015. Web. [www.gartner.com/smarterwithgartner/how-to-monetize-your-customer-data/](http://www.gartner.com/smarterwithgartner/how-to-monetize-your-customer-data/)

Various statistics indicate the prominence of the growing trend in the use of data by businesses.

In 2015, Gartner suggested that 30 percent of businesses would monetize data directly or indirectly through trade or sale by 2016. Meanwhile, an increasing number of top companies are creating Chief Data Officers, with the leverage and monetization of data top priorities for the company.<sup>63</sup> A report by the Economist Intelligence Unit indicates that 60% of respondents believe that data from their organisation is a source of revenue, with 83% stating the use of data is making present services and products more profitable.<sup>64</sup> Such statistics clarify the importance of data in modern business, and the efforts that many companies are making in order to find its greatest potential.

**Integration with CrossCult:** The CrossCult platform will receive a wide variety of statistics and data from its users, such as preferences, beliefs, or other insights. CrossCult can consider the trade or sale of this data to other institutions in the industry for an additional form of revenue.

#### 4.2.6. Primary Differences in Business Models

Each business model maintains unique characteristics that ensure their compatibility with specific products and services. In the evaluation of business models, there appear to be two main types of models with relation to the generation of revenue: active and passive.

Active models consist of the strategies in which revenue is generated from sales of the product or service to consumers. Models such as Licensing and Maintenance and Software as a Service fit this description. These models represent methods in which the business platform is marketed towards consumers, and in which the transaction occurs.

These models differ in the level of personalisation provided to the client. While Licensing & Maintenance and standard SaaS models are generally methods of selling a standard product, Contracts and the Added Services model offer a level of customisation and choice based on the needs of the client.

The three remaining models, Advertising, Sponsorship, and Use of Data, appear to generate revenue in a less direct manner. These strategies do not rely upon transactions between the service/product provider and client, but rather, on the use of the product or service to earn revenue through secondary means. The platform is an advertising medium, a source of data and information, or a platform which contains content that third parties wish to sponsor and support.

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<sup>63</sup>Henschen, Doug. "5 Priorities For Chief Data Officers". *Informationweek*, UBM ,2014. Web. [www.informationweek.com/big-data/big-data-analytics/5-priorities-for-chief-data-officers/d/d-id/1297884](http://www.informationweek.com/big-data/big-data-analytics/5-priorities-for-chief-data-officers/d/d-id/1297884)

<sup>64</sup>Marr, Bernard. "Big Data Facts: How Many Companies Are Really Making Money From Their Data?". *Forbes*. Forbes Media LLC, 2016. Web. [www.forbes.com/sites/bernardmarr/2015/09/30/big-data-20-mind-boggling-facts-everyone-must-read/#24a68e6617b1](http://www.forbes.com/sites/bernardmarr/2015/09/30/big-data-20-mind-boggling-facts-everyone-must-read/#24a68e6617b1)



### 4.3. Direct Competitors

Many small and medium sized organisations have specific needs, and thus may use a limited service or product in order to satisfy such needs. The CrossCult platform is unique in its size and variety – the grouping of a large number of essential services into an easy to use and customisable platform is an important innovation in the previously explored industries. While the project is unique in its entirety, there are products that specialize in the fulfilment of a particular service. Likewise, there are products or services that may work to address a similar need as CrossCult, however in a different manner. While these entities are not direct competition, they can provide challenges upon the entry into the market, and thus must be explored.

It is also essential to acknowledge that some of the most significant competition is outside of Europe – small regions of Asia and the United States may have similar technologies, however it is unlikely that they will enter Europe in the near future. It is important to still consider such technologies and companies as competition, in the scenario that the ideas do eventually overlap. Particularly within the technology industry, it is possible for an idea to quickly gain a broader market.

The adjustment of cultural institutions, organisations, and businesses, into the digital age is not a sudden one – for the past several years, many organisations have slowly changed parts of their operations to use technology.

It is progressively more common to see a museum use a mobile application to complement a visit, or to use an enhanced version of an audio guide. Such an option is more popular with medium and large sized institutions, for they have the necessary amount of resources to spend on development. The Prado Museum in Madrid, the Louvre in Paris, and the British Museum in London are examples of institutions with advanced applications to enhance the experience of the user.

Other organisations may use tools such as tablets, kiosks or computers throughout their location in order to enrich the experience of visitors/clients. **Omnivision**, **IntuiFace**, and **Flowvella** are companies that use such technology, permitting organisations, from corporate businesses to museums, to install interactive devices. While the core purpose of these services differs from the five of CrossCult, they still do provide innovative manners to create and present content for users, and some analysis capabilities, as added value to their product.

A popular integration into cultural institutions is the use of a scavenger hunt atmosphere. Platforms exist in which one can receive clues regarding content in a location, such as a museum or city, and embrace the search for the answers. An example of such an enterprise is Breadcrumbs, a relatively new company, but popular within London.

Currently, there exist several companies with products similar in intention to the CrossCult project, focusing on an integration of technology with content of organisations.



A primary concern for CrossCult is overcoming the established relations that many attractions and organisations currently maintain with service providers. Prominently, the strength of the audioguide industry within cultural institutions is a powerful barrier, as CrossCult must demonstrate the advantage and added value it provides in order for an organisation to shift service providers.

In 2013, the Museums Association surveyed museums in the United Kingdom in their Mobile Survey.<sup>65</sup> Out of those surveyed, 50% indicated they currently offered a mobile service, such as handheld devices provided by the museum, or an application, with 19% indicating they had plans to implement one in the next year, at the time. Such a percentage suggests that many organisations do currently use a service of some sort to guide visitors, thus the industry is not entirely open. Popular Audioguide providers include the **Orpheo Group, Antenna Audio**. CrossCult, however, will offer organisations the ability to advance beyond a standard audioguide with new and innovative features.

This section explores several competitors that are considered **direct competition** of the CrossCult platform – it is the belief that while these products might not be exactly similar to CrossCult, potential clients may consider them suitable substitutes due to a combination of features provided, or the ability to fulfil the needs of the business or organisation. Several of the competitors may be suitable for multiple industries, whereas others are specialized for specific fields, such as education or Smart Cities. Likewise, these competitors differ in geographic scope and size – while some operate across the European Unions, others are strong competitors in individual countries.

#### 4.3.1. Acoustiguide



**Acoustiguide** is an established company with over 60 years in the industry, with a principle product offering of audioguides. However, in recent years, the company has expanded to offer a number of services, including content creation, applications, and other multimedia guides. With regards to content creation, Acoustiguide develops customised platforms for its clients with a strategy entitled a “presentation identity”.

One can use this content on both websites as well as applications, and include videos, photos, and other multimedia aspects. Acoustiguide also uses location based services in order to help users locate themselves within an institution. Unlike many other software platforms, Acoustiguide also sells hardware and devices. While Acoustiguide is a global company, it appears to be targeted primarily towards larger museums. Clients of the company include institutions from the United Kingdom, Germany, France, Spain, and the Netherlands, amongst others. CrossCult differs from the product in its highly interactive and engaging intention, as

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<sup>65</sup> Museums Association. *Mobile Survey October 2013*. Museums Association, 2013. Web. [www.museumsassociation.org/download?id=1025016](http://www.museumsassociation.org/download?id=1025016)

well as use of data and information to generate a more personalised experience for each user.<sup>66</sup>

#### BUSINESS MODEL:

Acoustiguide offers their products and services, such as devices, or creation of content, at different prices. Many of the applications that the company has created are currently available free to individuals. The company also suggests that their clients charge a fee for the use of the audioguide, thus implying that the clients will pay a fixed sum to Acoustiguide for the devices, technology, and rights to distribute it. The company also indicates that they can be paid a per-visitor fee as an alternative payment.<sup>67</sup>

A unique aspect about the model of the company is that they offer financial assistance and plans for their clients, through leasing, revenue-sharing, sponsorships, and grants – thus, the model appears to combine standard purchasing options with other business models in order to remain financially stable and maintain a price that is affordable to clients.

#### 4.3.2. Sycomore



**Sycomore** is an additional popular provider of guides and services for organisations within Europe. It provides both audioguides as well as applications with multimedia content such as videos and photos. Like Acoustiguide, it uses geolocation services to orient the visitor, specifically in terms of their location between various points of interest. It offers limited statistical data, using Google Analytics, to inform the client of the nationality of visitors, the most popular places of interest as well as the number of users. It also integrates QR codes in its products, a popular aspect within many cultural institutions.<sup>68</sup>

#### BUSINESS MODEL:

With a large selection of services, products, and software, Sycomore also appears to use multiple methods in order to work with clients. With several of its products, the company offers multiple versions, such as a basic, enhanced, and full, at different price ranges, a form of an added services model. The company offers maintenance for its clients, and will participate in customised contracts with its clients to create a unique product.

Similar to Acoustiguide, it also appears to provide options for renting devices and software, as well as participating in a lease or revenue sharing model.Ç

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<sup>66</sup>Acoustiguide. Espro Acoustiguide Group, 2017. Web. [www.es.acoustiguide.com/](http://www.es.acoustiguide.com/)

<sup>67</sup>Acoustiguide. Espro Acoustiguide Group, 2017. Web. [www.es.acoustiguide.com/](http://www.es.acoustiguide.com/)

<sup>68</sup>Sycomore. Sycomore S.A, 2017. Web. [www.sycomore.eu/index.php/fr/](http://www.sycomore.eu/index.php/fr/)

### 4.3.3. NOUS



Originally based in Austria, **NOUS** is a quickly growing supplier of audioguide and visitor experiences in organisations, non-profits, and cultural institutions. The company offers a platform, website, and application for organisations to use in order to create and process content. The company also uses technologies such as location management and NFC in order to enhance its offering. Unlike Sycomore and Acoustiguide, it appears to focus substantially more on an interactive experience, using streaming, touch screens, as well as 360 ° tours to complement an exhibition. Augmented and Virtual Reality are also features within products and services of the company.<sup>69</sup>

#### BUSINESS MODEL:

NOUS advertises its ability to customise the experience of its clients with a personalised marketing and distribution plan, as well as a product unique to their needs. The company also promises long-term support and maintenance help for all of its clients, and offers its software both alone or alongside hardware.

### 4.3.4. smArtapps



Perhaps the most similar to CrossCult, **smArtapps** offers several primary products to organisations that can be integrated into a visitor experience. The smArtPublisher provides users the ability to create and manage application, content management capabilities, and graphic design.

The smArtGuide is an interactive application that offers geolocalization, social media sharing, multimedia content, image recognition, and an interactive map. The smArtAccess is a Wi-Fi system for a small section of an organisation to permit visitors to download the application of the institution. The application incorporates templates and augmented reality into its products. It appears that the company operates solely in France at this time.<sup>70</sup>

#### BUSINESS MODEL:

The exact business model of smArtapps is unclear, as it offers complex products and services. It does appear to be a simple purchase plan, with support as necessary provided by the company, resembling a licensing & maintenance strategy. The application does allow for potentials to request a demo, thus learning more about its capabilities prior to making a commitment for purchase.

<sup>69</sup> NOUS. NOUS Wissensmanagement GmbH, 2017. Web. [www.nousdigital.net/de/](http://www.nousdigital.net/de/)

<sup>70</sup> "Smartapps". Smartapps. smArtapps, 2016. Web. [www.smartapps.fr/](http://www.smartapps.fr/) .

In addition to local businesses, other partners include distributors, IT Companies, and large service providers of internet and communications technology.

#### 4.4. Competition in Content Management and Visualisation

There are a variety of services that businesses and institutions can use in order to present content in innovative manners. Such services focus on several areas: the creation of digital content, the organisation and indexing of content, the creation of digital exhibitions and collections, and the presentation of information to viewers.

##### 4.4.1. Open Exhibits



**Open Exhibits** is a software that uses human computer interaction in order to enhance the experiences of visitors. With pre-designed formats and templates, users of the application have the ability to create a display or presentation. Visitors of the organisation can interact with the display using hand gestures and movements, thus creating a more engaging experience<sup>71</sup>. Gestures can be 3D, but can also include voice spoken commands. While the technology is normally integrated with larger screens and displays, the large size permits multiple users to interact with one another at the same time, and work together on the interactive content. Individuals can draw, move shapes and figures, as well as access the Internet

It is a highly interactive platform that is targeted towards museums, but also businesses and learning institutions. The large screen and templates provide information in a professional, but enjoyable manner.

The platform is open source, allowing for individuals to expand the capabilities. The service appears to operate solely within the United States.

##### BUSINESS MODEL:

The software is free for museums, libraries, students, schools, non-profits, and government agencies, however, commercial entities may face some restrictions.

The software operates partially due to funding from outside organisations – initially, the National Science Foundation provided the funding needed, though it has also received grants from the Institute of Museum and Library Services, and receives matching funds from Idelum, a company that creates interactive exhibits, tables, and screens. Thus, it appears a sponsorship model is the most appropriate category for Open Exhibits.

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<sup>71</sup>"Open Exhibits". *Open Exhibits*. Institute of Museum and Library Services, 2017. [www.openexhibits.org/](http://www.openexhibits.org/)  
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#### 4.4.2. Kuldig



**Kuldig**<sup>72</sup> is a new German company with a product known as AppCreator that launched a pilot version at the start of 2017. Building on the common content management software, AppCreator is a software that permits individual institutions to create their own application, such as an audio or multimedia guide, in order to provide visitors with the desired information. Organisations have the opportunity to customise the application as suitable for their visitors.

With multiple templates and functions, it provides users with more control over their application. It also includes an analytics tool that permits users to gain information about visitors.

##### BUSINESS MODEL:

The company offers several pricing strategies, based on the type of application a user is developing, as well as on a monthly or annual plan. Costs can range from 150 to 250 euros a month. There are also opportunities to pay small fees and add additional services, such as tracking, languages, or updates.

#### 4.4.3. Qi - KeepThinking

The presence of content management software is also a potential competitor in regards to this service – the ability to organize content and use it for different purposes to ultimately serve an end user is a core feature of some programs.



**KeepThinking** offers **Qi**, a content management software that permits the archiving of digital assets, search functions, ability to publish data, as well as automated translation of content, amongst other offerings<sup>73</sup>. Although it does not explicitly present content in an innovative manner, such as other competitors, it provides an extensive list of capabilities that permit the user to easily manage such content, in a manner that facilitates the presentation of information. It permits content management on both an online web platform and mobile applications.

Currently a global business, it maintains an office in London. The application is used by over 200 institutions, such as museums, councils, businesses, universities, and magazines.

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<sup>72</sup>"KULDIG Index". *KULDIG*. Droid Solutions UG, 2017. Web. [www.kuldig.de/](http://www.kuldig.de/).

<sup>73</sup>"Qi". *Keepthinking*. Keepthinking, 2017. Web. [www.keepthinking.it/qi](http://www.keepthinking.it/qi)

## BUSINESS MODEL:

It is unclear the precise business model of Qi, however, it appears that one can purchase access to use an online platform and mobile application, in order to use the many features of the product. It appears to most resemble a SaaS model.

### 4.5. Competition in User Profile and Recommendations

The collection of user data based on the application, coupled with generating recommendations from both the organisation and other users, is an innovative addition to a software model.

#### 4.5.1. TripAdvisor



**TripAdvisor**, one of the largest travel websites worldwide, is a site that permits users to receive and provide information regarding travel choices and destinations

The main company, along with 23 media subsidiaries, is designed to enhance and facilitate the planning process for those wishing to travel. It is integrated with a number of platforms, such as other travel websites and search aggregators, in order to provide information regarding prices, deals, and recommendations.<sup>74</sup> In addition, the company also has a prominent application to create and develop travel plans with instant information available.<sup>75</sup>

The company can enhance the experience of users by providing recommendations for hotels, for affordable flights, and for landmarks and places to see within a specific location. Likewise, it provides connections to outside resources for bookings and accommodations, with no additional costs to consumers<sup>76</sup>.

A popular aspect of the website are the user forums, in which thousands interact with one another, answering and asking questions as needed.

The website adopted Amazon's smart recommendation engine in order to provide more targeted assistance to users, and integrated social media to complement the resources on the website. Likewise, it also uses external applications to expand its market share to more mobile platforms<sup>75</sup>. The company also permits users to download maps from Google Maps and determine nearby attractions, hotels, and other points of interest.

Although the company targets individuals, valid competition is posed by its numerous partnerships with organisations and businesses in the cultural tourism sector, coupled with the

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<sup>74</sup>"About Tripadvisor - Media Center". *TripAdvisor*. TripAdvisor LLC, 2017. Web. [www.tripadvisor.mediaroom.com/US-about-us](http://www.tripadvisor.mediaroom.com/US-about-us)

<sup>75</sup>Schmidt, Ally. "Understanding TripAdvisor's Business". *Market Realist*. Market Realist, Inc, 2015. Web. [www.marketrealist.com/2015/11/understanding-tripadvisors-business/](http://www.marketrealist.com/2015/11/understanding-tripadvisors-business/)

<sup>76</sup>Cocotas, Alex. "How \$3 Billion TripAdvisor's Business Works". *Business Insider*. Business Insider Inc, 2011. Web. [www.businessinsider.com/how-tripadvisors-business-works-2011-12](http://www.businessinsider.com/how-tripadvisors-business-works-2011-12)

popular integration of TripAdvisor with other platforms, using the numerous recommendations posed.

#### BUSINESS MODEL:

TripAdvisor is a conversational platform that encourages users to share their experiences, provide recommendations, as well as plan upcoming adventures through associated resources. The website is free to users; however, it is also the users themselves that provide much of the content present on the platform. The website is successful due to advertising, which works primarily on a cost-per-click method.

A breakdown of the revenue of TripAdvisor follows<sup>77</sup>

1. Click based advertising(77%)
2. Displayadvertising(13%)
3. Subscriptionrevenue(10%)

A description of how each revenue stream functions follows: <sup>75</sup>

- 1. ClickbasedAdvertising**—This model provides TripAdvisor with a fee, or a cost per click, every time a consumer clicks on a link on the website that directs them to an advertiser. The site manages the pricing of the clicks through an auction based system, thus allowing the popularity of the website and demand to set pricing.
- 2. DisplayAdvertising**—Through this method, advertisers, such as hotels, restaurants, and tourist attractions, pay a fixed fee in order to advertise on a portion of the website, in the form of text, banners, pictures, or videos.
- 3. Subscription**—Due to the large size of the platform, many businesses and attractions will engage in a subscription with the company, whereas they pay a fee each month in order to ensure their information is placed prominently on the website.
- 4. AffiliateModel**—A fourth, although smaller stream of revenue, the affiliate model refers to the manner in which the company partners with businesses and earns a commission of sales if TripAdvisor leads to a client conversion for the business.

The information from TripAdvisor can be integrated with other websites and applications, thus providing a challenge for CrossCult due to the breadth of recommendations available on the TripAdvisor platform.

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<sup>77</sup>Tsuruoka, Doug. "Tripadvisor Q2 Sales Miss Analyst Views; Shares Down". *Investor's Business Daily*. Investor's Business Daily, Inc. 2012. Web. [www.investors.com/news/technology/tripadvisor-second-quarter-sales-miss-estimates/](http://www.investors.com/news/technology/tripadvisor-second-quarter-sales-miss-estimates/)



## 4.6. Competition in Statistical Usage and Data Analysis

The analysis of the use of the application, data collected, and user information can provide essential information in the enrichment of the visitor or client experience of an organisation. While many applications may provide basic information, such as number of users in a day, CrossCult can establish an advantage in the breadth of information and analytics provided to users.

The principal competitors of CrossCult in terms of data analysis are specialized platforms that can be integrated with a website or application in order to provide additional information.

The features of competitors most relevant for the potential sectors of CrossCult include navigational paths and predicted demographics and personas. The ability of an organisation such as an educational institute, city, or tourism agency to understand the mind set and psychographics of an application user can improve the efficiency of the application as well as quality of the visitor experience.

The primary benefit for the CrossCult platform with regards to data analysis is that the majority of its competitors are designed for a much broader audience, as in any type of application – from gaming applications, to maps, to the applications of businesses, to lifestyle applications. CrossCult can ensure that the data provided in its platform is relevant to its specific industry, and provides the essential information needed.

### 4.6.1. Google Analytics



With regards to statistics and analysis, the primary competitor is **Google Analytics**. While the platform is most popular for the analysis of websites, recent years have seen its incorporation into applications of organisations, and a special platform entitled Google Mobile Analytics. The user of the analytics platform can gather information regarding number of users, characteristics, navigational paths, and behaviour of users. One can also integrate the information gathered from Google Analytics into other products and platforms of Google.

#### BUSINESS MODEL:

Google offers two plans for users of the platform<sup>78</sup>: Google Analytics, and Google Analytics 360. Google Analytics is the basic version, targeted towards smaller businesses – it offers standard analytic information, basic integration with some Google tools, and limited functionality, however, is free. 360 is considered fully functional, with enhanced versions of the Google Analytics services, as well as additional features such as specialized support, administrative capabilities, and further integration and control with other Google tools. The

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<sup>78</sup>"Google Analytics 360 Vs Google Analytics Standard". OWOX. OWOX Inc, 2017. Web.  
[www.owox.com/google-analytics-360/comparison/](http://www.owox.com/google-analytics-360/comparison/)



360 version offers enhanced analytics, access to raw information, and attribution models. Upon purchasing, a company receives a license for all websites under the company's domain – however, pricing starts at \$150,000/year, and can increase depending on size of the company. While the company receives a license, it does not receive explicit access to the software, thus it more resembles a service model.

The availability of a free standard version encourages wide usage by small businesses. While Google may not be directly generating revenue with the platform, the large number of users of Analytics contributes to increased usage of integrated tools, such as AdWords and other paid platforms. Likewise, Google gains a vast amount of data, permitting it to further develop all of its product offerings.

Google Analytics appears to use a combination of Licensing & Maintenance, Software as a Service, and Added Services. While Google does not explicitly commercialize the data gained from the application, it does make use of it.

#### 4.6.2. Flurry



**Flurry** is a platform similar to Google Analytics dedicated to the analysis of statistics of websites and applications. As of 2014, it was purchased by Yahoo, an additional search engine, and is a primary agent in the market. Features of Flurry include: the analysis of usage, navigation, segmentation of users by demographics and behaviour for analysis, predicted interests and personas of users, and further demographic analysis.<sup>79</sup>

##### BUSINESS MODEL:

Flurry is free to all users, and does not appear to offer a paid or enhanced version. A reason for the success of the application is due to the support of its parent company. In 2014, as an independent business, the business was struggling to maintain positive cash flows. The company adjusted its business model in order to offer advertising space, which quickly became the main form of revenue generation for the platform.<sup>80</sup>

Similar to Google Analytics, Flurry is a free service as it greatly supports the advertising platform of Yahoo, thus indirectly generating revenue.

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<sup>79</sup>"Introducing The All New Flurry Analytics". *Yahoo Developer Network*. Yahoo!. Web. [www.developer.yahoo.com/analytics/](http://www.developer.yahoo.com/analytics/)

<sup>80</sup>Reilly, Richard. "How The Yahoo Acquisition Saved Flurry From An Uncertain Fate (Exclusive)". *Venturebeat*. Venturebeat, 2014. Web. [www.venturebeat.com/2014/07/29/how-the-yahoo-acquisition-saved-flurry-from-an-uncertain-fate-exclusive/](http://www.venturebeat.com/2014/07/29/how-the-yahoo-acquisition-saved-flurry-from-an-uncertain-fate-exclusive/)

## 4.7. Competition in Positioning and Location Recognition

CrossCult hopes to use positioning and location recognition software in order to provide a more targeted experience for individuals, use surrounding landmarks to enhance a visit, and create unique routes for individuals to take. The positioning ability will be integrated into the platform as well as the content.

The integration of location into mobile applications is a popular inclusion into modern technology – a number of applications will request information about the location of a user, and use this data for various purposes.

The most prominent competition in this service would be those companies that specialize in the development of maps and city guides. Such products and applications provide information about the user's location, nearby landmarks, nearby stores, directions to certain places, and so forth.

Examples of enterprises that develop maps and use location recognition software include: **Google Maps, CityMapper, Triposo, and Maps.me.**

Examples of city guides for mobile devices include **Tripomatic, GogoBot, Like a Local Guide, and Pocket Guide**

### 4.7.1. Google Field Trip



An innovative application that some platforms use is **Google Field Trip**. Particularly useful in exploring a larger environment, the application provides notifications, interesting information, and facts regarding your surroundings. The application permits users to determine their level of interest, from very frequent notifications, to only the most important. Information is gathered from a wide variety of sources, including Google itself, The Historical Marker Database, concert websites, Worldwide Guide to Movie Locations, and more. From major landmarks, to smaller points of interest, to a random selection of buildings, a user can learn a great deal of information previously unforeseen.<sup>81</sup>

In 2015, Google Field Trip partnered with Europeana and heritage institutions in Europe on a pilot project that integrated curated cultural content into the application, providing additional information relevant to tourism, new images, descriptions, and enhanced quality.<sup>82</sup>

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<sup>81</sup>Metz, Rachel. "Should You Go On Google's Field Trip?". *MIT Technology Review*. MIT Technology Review, 2012. Web. [www.technologyreview.com/s/429433/should-you-go-on-googles-field-trip/](http://www.technologyreview.com/s/429433/should-you-go-on-googles-field-trip/)

<sup>82</sup>Popova, Milena. "Reach Cultural Tourists Through Europeana In Google's Field Trip App". *Europeana Professional*. Europeana, 2015. Web. [www.pro.europeana.eu/blogpost/reach-cultural-tourists-through-europeana-in-googles-field-trip](http://www.pro.europeana.eu/blogpost/reach-cultural-tourists-through-europeana-in-googles-field-trip)

### BUSINESS MODEL:

The model of Field Trip appears similar to other Google applications – while free to users, Google benefits from the data and information collected in the application to enhance its other, monetized platforms.

## 4.8. Competition in Social Interactions and Networking

The primary tools used by organisations and their applications for social interaction between users as well as between users and the company concentrate on the use of social media and outside networks. Applications might request access to post on a social media page, such as Facebook or Twitter. Others might encourage users to “like”, or “share” content in order to extend their reach on their brand.

However, much of this social interaction between brand and user relies entirely on shifting the relationship to a third party platform, such as a large social network, rather than maintaining communication networks within the application.

There are few established platforms that permit the integration of communication and social interaction within an application, suggesting that such a service will be fairly new to the industry.

### 4.8.1. Intercom



**Intercom** is a chat software that provides the ability for a business to communicate directly with users, such as in helping a new user, providing answers to questions, or notifying users of announcements. It provides statistics and analytics on chat interactions; however, it does not permit social interaction between users.<sup>83</sup>

Using a small amount of programming code, businesses can integrate the software with their own application, thus adding the needed chat and service features.

### BUSINESS MODEL:

Intercom offers several different programs focused on different needs of clients. The *Respond Plan* provides the ability to act as a help desk, and assist clients through live chat, email, and social networks. The *Educate*, plan, for example, serves as a support and help centre for clients. Each plan offers a Lite and a Standard version, with the Standard version costing slightly more, but offering multiple new features.

Likewise, it is also possible to combine different product offerings for a reduced price.

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<sup>83</sup>"Customer Messaging Platform". *Intercom*. Intercom, 2017. Web. [www.intercom.com/](http://www.intercom.com/)  
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Pricing works on a monthly payment model, and depends on the product or plan you purchase. The cheapest is the Educate Lite, at \$49/month, while the Standard version of all products combined costs \$181 per month.

The model of Intercom resembles an Added Services format, in that it offers multiple versions of each product. The company also ensures that each of its product offerings serves unique purposes effectively, but works most efficiently when combined. As companies receive programming code, it resembles a licensing strategy, more so than a software as a service plan.

#### 4.8.2. Layer



**Layer** is perhaps the best example of the ultimate intent of social interactions within the CrossCult platform. Similarly to Intercom, it permits interaction between a company representative and a user, integrated within the application of the business. As such, a representative can serve in a sales, commerce, or support role. However, it also encourages user messaging – users of the application can message one another directly. The company can also create public chatrooms within the application related to various topics that permit groups of individuals to chat with one another.<sup>84</sup>

A unique characteristic of both Intercom and Layer is the incorporation of content sharing within the messaging application. One can share locations, maps, recommendations, products, all in a well-presented and professional manner, with a smooth integration into the application.

#### BUSINESS MODEL:

Layer offers multiple tiers based on the number of users of an application, starting with a free test version for companies to observe the level of success with customers. The pricing tier then starts at \$99/month, and will increase accordingly with the number of monthly users.

The company also receives financial backing from multiple sources, such as AME Cloud Ventures and Bloomberg Beta.<sup>85</sup>

### 4.9. Competition in Cultural and Creative Industries

#### 4.9.1. Online Platforms

With regards to advertising, the complexities of the market make it difficult to identify a single competitor. Rather, it is important to consider that competition may stem from advertising

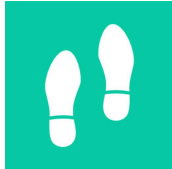
<sup>84</sup>"The Customer Messaging And Conversation Platform". *Layer*. Layer, 2017. Web. [www.layer.com/](http://www.layer.com/)

<sup>85</sup> Perez, Sarah. "Layer, Which Lets Developers Add Messaging To Any App, Launches To Public". *Techcrunch*. AOL Inc, 2015. Web. [www.techcrunch.com/2015/02/25/layer-which-lets-developers-add-messaging-to-any-app-launches-to-public/](http://www.techcrunch.com/2015/02/25/layer-which-lets-developers-add-messaging-to-any-app-launches-to-public/)

agencies that assist businesses in creating campaigns, from platforms that offer advertising and promotional space, and from applications and platforms that promote local enterprises. One must also consider the tools or platforms in which material is directed towards cultural audiences.

Large networks such as Facebook, Twitter, and Google permit advertisers and businesses to target their campaigns according to certain criteria and audiences, and are three of the most popular tools for businesses, regardless of size, to invest in.

#### 4.9.2. Breadcrumbs



The integration of gaming aspects with cultural and educational content is an innovative way to encourage engagement between organisations and individuals. Breadcrumbs is a new product, developed in 2017, but already integrated within multiple institutions in London.

The product works on a scavenger hunt model. Upon visiting an institution or area where a hunt has been created, such as the Victoria and Albert Museum, users can embark on a two hour long activity in which they try to solve puzzles and riddles, while processing material present in the area. Users will receive text, pictures, and videos through text message or Facebook Message throughout the hunt regarding content in the institution.<sup>86</sup>

Interested organisations can partner with Breadcrumbs to create a unique hunt, as well as promote it efficiently to potential users.

#### BUSINESS MODEL:

Individuals who are interested in participating in a scavenger hunt must pay £3.99.<sup>87</sup>

### 4.10. Competition in Cultural Tourism

#### 4.10.1. TripOrg



**TripOrg** is an online platform and application that allows individuals to create navigational paths based on interests, time, and place. An individual can indicate the timeframe in which they will be traveling in a city. The user can indicate activities they may wish to participate in, or other places of interest. Examples include indicating a level of interest in culture, education, monuments, festivals, food, and nature.<sup>88</sup>

Using the information collected, the platform develops a route for visitors to follow throughout the time of their trip. Information such as travel time, recommended visit time and total cost of activities are included in order to ensure that an individual has the necessary information.

<sup>86</sup> Breadcrumbs. Breadcrumbs. 2017. Web. <https://www.breadcrumbsgame.com/>

<sup>87</sup> Hoole, Georgie. "Follow Text Message clues to Find Treasure in London Museums". *Secret London*. Secret-Ildn. 2017. Web. <http://secretldn.com/2017/02/text-message-treasure-hunt-breadcrumbs-london/>

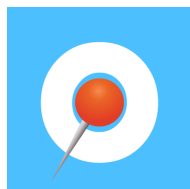
<sup>88</sup> TripOrg. TripOrg S.L. 2016. <https://www.triporg.org/>

In 2015, Segittur, an agency of the Spanish government focused on innovation and tourism, awarded the product with the best international tour guide application.<sup>89</sup>

#### BUSINESS MODEL:

The application is free to download for individuals, and it is possible to integrate the technology on other websites and platforms. Revenue streams appear to come from advertising.

#### 4.10.2. OROUNDO



**OROUNDO** allows visitors to plan trips and learn about culture, cities, and nature through innovative storytelling and entertaining educational content. Material varies based on age groups as well as interests of the user, but it ensures a unique experience that is highly integrated with the location of interest. When partnered with organisations, the platform supports marketing strategies as well as customer loyalty programs. If the application is integrated with a city, the application can promote specific areas, thus increasing engagement or marketing goals. Individuals have the ability to interact with others that are using the application.<sup>90</sup>

#### BUSINESS MODEL

OROUNDO provides software and hardware free of charge, thus earning its revenue in other manners.

### 4.11. Competition in Cultural Services

With regards to the Cultural Services industry, the competition aligns with the competition identified in the analysis of the various services of the CrossCult platform. Many of these services, such as content creation, are primary functions within the sector. Unlike the other industries analysed, it is more difficult to segment specific competitors for solely the Cultural Services sector.

### 4.12. Competition in Education

Competition in education stems from platforms that encourage eLearning, content organisation programs, as well as technologies that are creating innovative experiences within a classroom.

#### 4.12.1. Moodle



Moodle is a free, web-based, open-source learning management system (LMS) available to users in corporate and academic settings. It is a form of eLearning and electronic education that broadens the communication between users beyond the classroom, integrating instruction, assessment, and other modules to enhance an experience.

<sup>89</sup> Concurso. "The AppTourism Awards 2015". *Segittur*. Sociedad Mercantil Estatal para la Gestión de la Innovación y las Tecnologías Turísticas. 2015. Web. <http://www.segittur.es/es/proyectos/proyecto-detalle/CURSO-The-AppTourism-Awards-2015/#.WRLz3tLyjIV>

<sup>90</sup> Oroundo. Oroundo. 2016. Web. <http://oroundo.com/en/>

While Moodle does not share as many similarities with the CrossCult platform as other competitors listed, it is considered direct competition due to its wide popularity in the educational and abilities for integration with a variety of institutions

The primary goal of Moodle is to be user-friendly, and thus all users have the option to customise their platform in terms of appearance, services, and more. Modules on the platform include assignments, quizzes, and collaboration between users through workshops and crowdsourced information.<sup>91</sup>

There are opportunities for social interaction between teachers and students, but also amongst peers, who can provide commentary to one another as well as ask questions.

The platform also includes scoring systems, rewards, and other gaming ideas in order to keep users engaged, but also keep a group organized.

#### BUSINESS MODEL:

Moodle is a free learning management software platform for others to use. The platform sustains itself financially with the help of over 60 partners, including consulting firms and educational institutions. A percentage of the profits made by all partners within the network are used for the development and maintenance of the Moodle Educational platform.<sup>92</sup>

While these companies offer similar services overall to CrossCult, the broad reach of the CrossCult platform assures that the product can address additional needs of clients, and integrate a greater number of services into an advanced software platform.

#### 4.12.2. Unimersiv



A growing trend within education is the integration of technology within classroom experiences. While the presence of computers, tablets, and smartphones within the classroom has transformed the industry, the sector is quickly progressing to more advanced platforms.

**Unimersiv<sup>93</sup>** is one of many companies that successfully use Virtual Reality technologies in order to develop classroom experiences and material.

The application works on the premise that students are likely to remember 90% of the material that involves interact elements, or encourages students to engage with material beyond viewing or reading. As software, it is compatible with multiple platforms, including Google Cardboard, Oculus, as well as Samsung Gear.

The company offers two different services: "experiences", and "courses". Experiences are activities in which students can find themselves immersed in historic locations or events, and explore themes and locations such as the Acropolis of Athens, or the Titanic. Courses are

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<sup>91</sup>"Moodle". *Icon Technical Group*. Icon Technical Group Inc., 2017. Web. [www.icontechnicalgroup.com/open-source-technologies/moodle/](http://www.icontechnicalgroup.com/open-source-technologies/moodle/)

<sup>92</sup>"Moodle Partners". *Moodle*. Moodle Pty Ltd, 2017. Web. [www.moodle.com/partners/](http://www.moodle.com/partners/)

<sup>93</sup> Unimersiv. *Unimersiv*. 2017. Web. <https://unimersiv.com/?ref=menu>



examples of virtual classrooms that encourage distance learning – they can be created by anyone, meeting certain standards, but examples include themes ranging from the French Revolution to Social Media Marketing.

Much as CrossCult aims to spur reinterpretation, Unimersiv hopes to encourage new forms of engagement.

#### BUSINESS MODEL:

The software is designed to be integrated primarily within a school system, but also is available to museums. However, individuals can also download an application, which has thus far been accessed by over 300,000 devices. Experiences on the application for users cost small fees, such as \$1.99 for a unique experience with the International Space Station.<sup>94</sup> The company encourages outside developers to create content to be placed on the software and receive a portion of the revenue it might generate.

Other examples of virtual reality in education include Immersive VR Education, Cerevrum, and Nearpod.

### 4.13. Competition in Smart Cities

The largest competitors within the Smart Cities industry are platforms that encourage the integration of city services with other core aspects of society, and those that promote engagement by individuals and businesses in a community.

#### 4.13.1. SmartAppCity



SmartAppCity is the first application in Spain which unites city services with the interests of tourists and the commercial sector. The application, an example of the integration between culture, tourism, and government, will be competition primary with cities and governmental institutions.<sup>95</sup>

Get-AppSpain is a company dedicated to the design, development and implementation of mobile applications for smartphones and tablets, targeted primarily at businesses and public institutions. Get-App belongs to the JIG Group, a leading advanced business-services company within ICT.

Under a PPP (Public–Private Partnership) framework, city councils, businesses, and shops share data, providing valuable information for citizens and improving standards of living.

The application offers global solutions, adapting to the needs of clients and permitting the incorporation of a variety of tools and solutions, in areas such as:

- Tourism: the application highlights sights that citizens and visitors must see
- Commercial Development: fosters commerce in the city due to geopositioning and the

<sup>94</sup> Unimersiv. *Oculus*. Facebook. 2017. Web. <https://www.oculus.com/experiences/gear-vr/1102239349818336/>

<sup>95</sup> Smartappcity. Get App Spain S.L, 2017. Web. [www.smartappcity.com/es/](http://www.smartappcity.com/es/)



publication of offers, products, and services.

- **Citizen participation:** citizens take an active part in municipal life through suggestions and surveys.
- **Real-time information:** all data from city services are in real time.
- **Reservations and e-Administration:** the citizen can make reservations in the city, or interact with the municipality in a simple way.
- **Business intelligence:** SmartPlatformCity is a platform that monitors behaviour and provides analytics.

Other services include audience segmentation, city guides, reservations for facilities, parking and traffic information, and news about weather, the environment, and local businesses.

#### BUSINESS MODEL:

SmartAppCity is built on the idea of Public Private Partnerships, in which the local government can collaborate with businesses and other entities in the community to develop a unique application and experience for visitors. The city can then request and pay for the creation of an application for the region.

The platform creates an application with the services of the city in mind, and offers shops and businesses the opportunity to deliver their offers and be geopositioned on maps for an annual fixed fee.<sup>96</sup>

#### 4.13.2. Urban Air



**Urban Air** is a smartphone application that aims to provide assistance to three main groups: cities and city councils, businesses and organisations within a city, and citizens who seek a more active role or information regarding their surroundings.

The application provides a variety of functions for each group that attempts to address their core needs. Cities can create alerts and other announcements and distribute it through the application to users. However, it can also gather information and data from application users, and apply it to improve infrastructure, technology, and other essential aspects of society. Such data allows cities to benefit from the Internet of Things, and thus provide a better experience for all residents in the municipality. Brands can advertise their products, services, or special offers, as well as advertise through the application. This advertising can be location based, as Urban Air employs a beacon and location recognition software. Citizens can obtain important news from their government, as well as locate special

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<sup>96</sup> Smartappcity. Get App Spain S.L, 2017. Web. [www.smartappcity.com/es/](http://www.smartappcity.com/es/)

discounts and offers from local businesses. Interactive features provide the ability for individuals to provide feedback, reviews, recommendations, as well as connect with city officials to address problems or questions.<sup>97</sup>

#### BUSINESS MODEL:

The application offers three different versions, depending on the size and necessary functions of the organisation or city interested. Fees are charged monthly, although revenue sharing models also exist.

The following table summarizes the competition of CrossCult, their services, as well as their business models.

Table 10 Competitive Analysis: A summary of the characteristics and business models of all competitors analysed.

COMPANY NAME	SERVICES	BUSINESS MODELS
<b>Acoustiguide</b>	<ul style="list-style-type: none"> <li>• Audio and multimedia guides</li> <li>• Content creation and visualisation</li> <li>• Creation of customised guides</li> <li>• Geolocation Services</li> </ul>	<ul style="list-style-type: none"> <li>• Licensing &amp; Maintenance</li> <li>• Sponsorship</li> <li>• Fee per Use</li> <li>• Revenue Sharing</li> </ul>
<b>Sycomore</b>	<ul style="list-style-type: none"> <li>• Audioguides</li> <li>• Applications with multimedia content</li> <li>• Geolocation services</li> <li>• Statistical data</li> </ul>	<ul style="list-style-type: none"> <li>• Licensing &amp; Maintenance</li> <li>• Added Services</li> <li>• Lease</li> <li>• Revenue Sharing</li> </ul>
<b>NOUS</b>	<ul style="list-style-type: none"> <li>• Audioguides</li> <li>• Creation of platforms, websites, and applications</li> <li>• Location management and NFC</li> <li>• Interactive experiences</li> <li>• Augmented and Virtual Reality</li> </ul>	<ul style="list-style-type: none"> <li>• Licensing &amp; Maintenance (standalone or with hardware)</li> <li>• Personalised marketing, distribution, and purchase plan</li> <li>• Long term maintenance.</li> </ul>
<b>smArtapps</b>	<ul style="list-style-type: none"> <li>• Creation and management of personalised application</li> <li>• Content management and visualisation</li> <li>• Location recognition</li> <li>• Social media sharing</li> <li>• Interactive map</li> </ul>	<ul style="list-style-type: none"> <li>• Software as a Service</li> </ul>

<sup>97</sup>UrbanAirApp. Bfonics, 2017. Web. <http://www.urbanairapp.com/>

	<ul style="list-style-type: none"> <li>• WiFi system</li> <li>• Augmented Reality</li> </ul>	
<b>Open Exhibits</b>	<ul style="list-style-type: none"> <li>• Human/Computer Interaction</li> <li>• Content creation and visualisation</li> <li>• Gesture displays</li> <li>• Interactive</li> </ul>	<ul style="list-style-type: none"> <li>• Free licensing for most entities</li> <li>• Sponsorship</li> </ul>
<b>Kuldig</b>	<ul style="list-style-type: none"> <li>• Content management</li> <li>• Create-your-own application platform</li> <li>• Analytics</li> </ul>	<ul style="list-style-type: none"> <li>• Added services</li> </ul>
<b>Qi – KeepThinking</b>	<ul style="list-style-type: none"> <li>• Content Management Software</li> <li>• Automatic translation of content</li> <li>• Organisation of content</li> <li>• Web platform and applications</li> </ul>	<ul style="list-style-type: none"> <li>• Software as a Service</li> </ul>
<b>TripAdvisor</b>	<ul style="list-style-type: none"> <li>• Travel website and application</li> <li>• Recommendations for tourists</li> <li>• Advertising of businesses</li> <li>• Location recognition</li> </ul>	<ul style="list-style-type: none"> <li>• Advertising</li> <li>• Subscriptions</li> <li>• Affiliates</li> </ul>
<b>Google Analytics</b>	<ul style="list-style-type: none"> <li>• Analytics</li> <li>• User demographics and modelling</li> </ul>	<ul style="list-style-type: none"> <li>• Licensing &amp; Maintenance</li> <li>• Software as a Service</li> <li>• Added Service</li> <li>• Use of data</li> </ul>
<b>Flurry</b>	<ul style="list-style-type: none"> <li>• Analytics</li> <li>• User demographics and modelling</li> <li>• User preference information</li> </ul>	<ul style="list-style-type: none"> <li>• Advertising</li> <li>• Use of Data</li> </ul>
<b>Google Field Trip</b>	<ul style="list-style-type: none"> <li>• Geopositioning and location recognition</li> <li>• Tourist notifications</li> <li>• Information sourcing, partnership with Europeana</li> </ul>	<ul style="list-style-type: none"> <li>• Use of data</li> </ul>
<b>Intercom</b>	<ul style="list-style-type: none"> <li>• Integrated chat application</li> <li>• Content sharing</li> <li>• Statistics</li> </ul>	<ul style="list-style-type: none"> <li>• Added Services</li> <li>• Licensing &amp; Maintenance</li> </ul>
<b>Layer</b>	<ul style="list-style-type: none"> <li>• Integrated chat application</li> <li>• Social Interaction</li> <li>• Content sharing</li> </ul>	<ul style="list-style-type: none"> <li>• Added Services</li> <li>• Licensing &amp; Maintenance</li> <li>• Sponsorship</li> </ul>
<b>Breadcrumbs</b>	<ul style="list-style-type: none"> <li>• Scavenger Hunt game</li> <li>• Receive texted or messaged clues</li> <li>• Integrated within institutions</li> </ul>	<ul style="list-style-type: none"> <li>• Each hunt has a fee – pay per use.</li> </ul>
<b>TripOrg</b>	<ul style="list-style-type: none"> <li>• Tourism and route planner</li> </ul>	<ul style="list-style-type: none"> <li>• Free for users</li> </ul>

	<ul style="list-style-type: none"> <li>• Website or phone application</li> <li>• Create navigational paths</li> <li>• Receive recommendations based on preferences and interests</li> <li>• Learn suggested time spent on activities and costs</li> </ul>	<ul style="list-style-type: none"> <li>• Can be integrated with websites</li> </ul>
<b>ORUNDO</b>	<ul style="list-style-type: none"> <li>• Learn about cities, culture, or nature</li> <li>• Phone application</li> <li>• Innovative storytelling</li> <li>• Integration of visuals</li> </ul>	<ul style="list-style-type: none"> <li>• Free for users</li> </ul>
<b>Moodle</b>	<ul style="list-style-type: none"> <li>• Learning Management Software</li> <li>• Electronic education</li> <li>• Customisable platform</li> <li>• Gaming elements</li> <li>• Social interaction</li> </ul>	<ul style="list-style-type: none"> <li>• Sponsorship</li> <li>• Open-sourced, with maintenance.</li> </ul>
<b>Unimersiv</b>	<ul style="list-style-type: none"> <li>• Virtual Reality experiences and courses</li> <li>• Immersive interaction</li> <li>• Integration within school district or museum, or available to individuals for download</li> </ul>	<ul style="list-style-type: none"> <li>• Individual lessons have fees</li> </ul>
<b>SmartAppCity</b>	<ul style="list-style-type: none"> <li>• Application for Smart City</li> <li>• Highlights tourist attractions</li> <li>• Geopositioning</li> <li>• Advertisement of businesses</li> <li>• Real time information from city</li> <li>• E-Administration services</li> <li>• Business Intelligence</li> </ul>	<ul style="list-style-type: none"> <li>• Public Private Partnerships</li> <li>• Advertising</li> <li>• Licensing &amp; Maintenance</li> </ul>
<b>Urban Air</b>	<ul style="list-style-type: none"> <li>• Mobile phone application</li> <li>• Focused on citizens, city councils, and businesses</li> <li>• Encourages engagement</li> <li>• Promotes smart data use for infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Added Services</li> <li>• Revenue Sharing</li> </ul>

#### 4.14. Conclusions

The goal of the competitive and business model analysis was to obtain information about the key competitors in the various industries considered for the CrossCult product launch. Information regarding products, services, audiences, business models, and stakeholders was considered in the investigation of potential competitors in the market.

It is clear that each industry and the organisations within require specific services and products more than others. While there are certain platforms that excel in the provision of a service to a particular industry, there are few that can adequately serve the needs of organisations and businesses throughout the five principal sectors that CrossCult is considering.

In the analysis of the competition, the key functions and services of CrossCult were compared to competitors across the market, and it is evident that there is always an area in which CrossCult can provide an advantage over its competitors, due to its broad combination of services at a highly technological and advanced level.

While it is true that tools such as Google Analytics and Flurry provide quality information regarding app and website usage, the functionalities of such applications are limited. Likewise, an application such as Layer can only supplement an application with communications software.

The competitive analysis has **revealed** the basic and principal competitive advantage of CrossCult, a complete integration of important functionalities into a single customised application.

There does not exist a competitor that can effectively provide the eight core modules of the CrossCult platform in one integrated software. In order to obtain similar services, a company would have to use multiple different forms of software.

With the CrossCult platform, a business will not have to integrate multiple tools into an application in order to achieve its desired function, but rather, use the built in functions of CrossCult and obtain information easily.

Although there exists strong competitors in specific sectors, such as NOUS and Sycomore, or Moodle for education, CrossCult provides an innovative solution to the needs of competitors in the industry.

In terms of functionality, the most popular function is clearly the management, visualisation, and presentation of content. There are a variety of companies that specialize in the field, each offering unique methods in which organisations can display their information to users – websites, applications, interactive screens, and so forth.

On the other hand, the markets for the effective use of location recognition as well as the creation of user profiling and recommendations appear to be more open for exploration, lacking the strong competitors of other services.

CrossCult must accurately communicate with potential clients its competitive advantage, and the benefit of a fully integrated application specialized to their needs.

With regards to business models, there are multiple competitors that offer licensing for the software, often with different options based on price and functionality. Other platforms are

free, funded with the support of networks or parent companies in order to gain a broader client base. Advertising space also appears to be a stable form of revenue generation.

As CrossCult continues to develop as a platform, the viability of each model must be explored. Likewise, latter sections will research the potential success of business models alongside possible marketing strategies.

Ultimately, as seen particularly with direct competitors, the combination of aspects of different business models can be the best strategy for certain products, and must be considered.

For future research, it will be essential to consider the information gathered through this report. Recollection of the primary strengths of competitors, the relevant stakeholders for each competitor, as well as the significance of the various business models in the industry will be of utmost importance in the development of a successful business model and marketing strategy.

## 5. Phase IV: Stakeholder Evaluation

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### 5.1. Introduction to the Stakeholder Evaluation

The understanding and evaluation of potential stakeholders is an essential aspect in the development of a product or service. This includes the consideration of the characteristics, needs, and wishes of clients. While the industry analysis provided an illustrative depiction of the viability of certain sectors, and their connections to technology and digital material, it lacks the nuanced information regarding stakeholders and individual organisations.

Modern society permits one to compile information in a variety of methods, using both secondary and primary sources. A successful analysis gathers information from different perspectives, and covers factors including:

- Present capabilities and limitations of stakeholders
- The needs and wishes of stakeholders for the future
- Basic information and characteristics about clients
- Thoughts and opinions of stakeholders with regards to product or service idea

The successful collection of such information assists in the construction of a detailed and multifaceted market study.

### 5.2. Objectives of the Stakeholder Evaluation

CrossCult is a complex platform that can potentially serve a vast market in both industries and geographical regions. The research and analysis conducted thus far has focused on the broader characteristics of the market environment, and has been obtained solely through secondary sources. However, as the development of the platform continues, it is optimal to observe the functions of the platform that are most applicable to the various industries of interest. **The Stakeholder Evaluation** aims to obtain specific information regarding the potential clients of the CrossCult platform, including how the platform may appeal to them.

The goals of the evaluation include gathering information regarding market drivers and trends, the identification of common characteristics amongst stakeholders, information regarding client needs, in addition to gathering preliminary opinions and thoughts with regards to CrossCult technologies. A purpose of the survey includes obtaining information regarding the businesses and organisations that may purchase or use the CrossCult platform in order to achieve their own commercial goals.

The analysis will be conducted through two methods:

- Secondary Research – Industries and stakeholders will be evaluated to identify the drivers and trends present in the market.
- Primary Research – A survey will be conducted and gather opinion from organisations, businesses, and institutions that represent potential clients for the platform.

In conjunction with the competitive analysis and industry assessment, the stakeholder analysis will contribute to the development of a successful platform and business model.

### 5.3. Stakeholder Needs and Market Drivers

The needs of the potential stakeholders of CrossCult are highly integrated with the needs of their clients and visitors. For example, if a tourist seeks to be informed, a need of a cultural tourism organisation will include a strategy or tool to inform clients. As such, in analysing stakeholder needs, consideration is given to both the organisations themselves, but also individuals involved in the industry.

It is also important to consider the market drivers and trends of each industry, as they promote similar needs within participants of the industry. As an example, as a trend of many industries in modern society is the evolution of technology, and as such, individual organisations and businesses must adapt to such changes in order to remain successful.

#### 5.3.1. Cultural and Creative Industries

As the prominence of electronic devices grows, individuals are more accustomed to accessing cultural and creative content, as such; the integration of technology with content is quickly growing in importance.

The popularity of technology has impacted CCIs in a variety of manners, forcing the industry to change and adapt with the evolution of society in regards to five different areas:<sup>98</sup>

- Abundance - There is now a large amount of cultural and creative content available to consumers.
- Personalisation - Consumers seek customised content and experiences, with regards to time or place.
- Aggregation and Recommendation - Individuals seek aggregated content and specialised information to aid them in their choices.
- Community - There is now increased interaction through social media platforms, as well as increased trust amongst peers.
- Involvement: - More than in the past, content must engage individuals as opposed to merely offering information.

The size of the industry indicates that individual businesses and organisations will seek manners in which they can differentiate themselves from potential competitors, specifically in regards to the five aforementioned factors. A personalised experience, for example, is a factor that such organisations may continuously explore and seek to excel in.

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<sup>98</sup>Cultural times. The first global map of cultural and creative industries. December 2015  
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In regards to subsectors, both advertisers and those involved in the gaming industry seek strategies to take advantage of the online and mobile markets, and to continue to expand their reach beyond traditional audiences.

CrossCult provides a platform that allows organisations to address each of the five listed needs. As a platform, it can permit institutions to manage the abundance of information in a constructive manner through content creation, management, and visualisation. The platform permits organisations to personalize the content, and machine reasoning tools allow for each experience to be unique. Social interaction tools, in combination with gaming elements, and opportunities for recommendations and feedback, all contribute to the community and involvement aspects of the industry, fostering interaction and engagement by users.

### 5.3.2. Cultural Tourism

Cultural Tourism is increasingly a fundamental aspect of a city's identity, and many cities are seeking ways in which to improve their amount of cultural offerings in order to attract new visitors.

*Prominent concerns regarding cultural tourism is the creation of a product or service that can be marketable and attract outside visitors.<sup>99</sup> This is a larger process that includes aspects such as the functionality of an attraction, the publicity it receives, and elements that can enhance the experience of a visitor.*

Cultural tourists are unique in that they chose culture as a reason for travel as opposed to recreation or pure relaxation – this can be attributed to socioeconomic status, lifestyle, or merely the desire for a unique experience and to truly understand another culture.

CrossCult offers organisations to address the primary needs of the individuals within the industry. It is a highly unique platform, and thus organisations can use it as a form of marketing an original, interactive, and educational experience for visitors to engage with content.

### 5.3.3. Cultural Services

As service providers, organisations within the Cultural Services industry rely largely upon general cultural trends in their operations. Mindshare has identified several major cultural drivers, all applicable to companies within the industry<sup>100</sup>:

- The Democratisation of Information - Digital technology has made information more accessible to all, regardless of time and place, and thus changed the attitude towards

<sup>99</sup> "Nature and Characteristics of Cultural Tourism". *Cultural Tourism in the Regions of Montana-Vidin-Dolj*. Romania-Bulgaria Cross Border Cooperation Programme. Web. 2017. <http://www.montana-vidin-dolj.com/en/publications/?NewsId=3>

<sup>100</sup> Culture Vulture. "Cultural Drivers & Consumer Trends". Mindshare. [https://www.mindshare-world.com/sites/default/files/Culture%20Vulture Manual%20Edition Final 2.pdf](https://www.mindshare-world.com/sites/default/files/Culture%20Vulture%20Manual%20Edition%20Final%202.pdf)

content. Individuals look for new ways in which to digest information, as well as varied sources and perspectives.

- **Data Powered Everything** - Culture is evolving due to the new data-driven society. Concepts such as the Internet of Things, coupled with the high level of data collection of companies and other organisations, can transform the way in which organisations provide services, and in which individuals consume information.
- **People Empowerment** - Due to improvements in technology, individuals have increased power and advantages in everyday life, and can play important roles within everyday community. Knowledge can improve cooperation between individuals, and data provides citizens with new information, skills, and capabilities.
- **Adaptive** - The speed at which society is evolving forces organisations to adapt to new changes, to the new needs of consumers, and to new technology. The market is filled with new business ideas, and organisations should explore their options to find services that can assist them in their goals.

*These cultural drivers suggest that organisations are willing to explore new methods of disseminating information, connecting with individuals, and using data. The newfound importance of information, data, and the power of individuals, supports the idea that organisations must innovate in order to maintain relevance in today's society.*

CrossCult addresses these market drivers in a manner similar to that of the Cultural and Creative Industries. The platform is highly adaptable to different needs, and organisations will have control over the information and content within it, thus allowing it to serve different audiences. The wide variety of tools provides the opportunity to present information in numerous ways, and offer individuals more options and choices in determining their experience. The application also provides a large amount of analytical and statistical data, which can be further used to enhance both the application as well as operations of the organisation.

#### 5.3.4. Education

The fundamental goal of educational institutions and organisations is to provide individuals with necessary knowledge. As the global economy evolves, a number of key market drivers are affecting the needs of industry participants, including<sup>101</sup>:

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<sup>101</sup> "Global Education Market." *Apollo Global*. Apollo Global. Web. <http://www.apolloglobal.com/middle-east-africa-global-education-market>

- Differences in quality of education – Different societies offer contrasting levels of education. As such, institutions seek innovative ways to supplement education, or to close the gap in quality.
- The rise of technology – As technology grows in prominence, its role in education is also changing. It is possible to use new styles of teaching, reach new audiences, and integrate new experiences.
- Globalisation of education – Technology and an increasingly global society affect the manners in which the education sector operates. Educational material may take the form of new perspectives, or share more similarities across country borders. Education is no longer confined to geographic regions, as eLearning and distant classrooms have provided opportunities to learn regardless of location.

Other trends in the industry include increased creativity, new methods of content presentation, and the use of mobile technology.<sup>102</sup>

The drivers and trends of the sector suggest that educational organisations need assistance in adapting to the use of technology in the classroom, as well as creative manners in which to integrate outside sources of information, tools, and content, in an educational manner.

CrossCult is a platform in which institutions can quickly integrate their content with the growing technological society. As a tool that aims to serve communities across Europe, partially due to such differences in culture, history, and interpretations of such, the tool can be a helpful tool in minimizing differences in education across societies.

### 5.3.5. Smart Cities

Smart Cities became a popular phenomenon due to the increasing prominence of technology as well as a desire of cities for increased efficiency and use of resources. As the industry continues to grow, there are several prominent drivers<sup>103</sup>:

- Strength of Network – The concept of a Smart City relies heavily upon the connectivity of the city to technology. As cities begin to implement strategies to improve efficiency, they must continue to improve technological capabilities throughout the city, such as wide spread internet connection.
- Mobility and Citizen Abilities – Providing individuals with a role in the success of a Smart City will be a prominent feature in the coming years. Providing citizens

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<sup>102</sup> Ellis, Julie. "7 Global Trends in Education in the 21<sup>st</sup> Century". *Global Education Conference*. 2016. <http://www.globaleducationconference.com/profiles/blogs/7-global-trends-in-education-in-the-21st-century>

<sup>103</sup> Horn, John. "Examining the 3 Driving Forces Behind Smart Cities (Industry Perspective)." *Digital Communities*. E. Republic. 2016. Web. <http://www.govtech.com/dc/articles/3-Driving-Forces-Behind-Smart-Cities-Industry-Perspective.html>

with applications to interact with the government, local businesses, or other city services, will be a popular strategy for most successful cities. The level of engagement of citizens in the initiatives of Smart Cities will be a key factor in the growth of each city.

- **Analytics** – The success and further growth of a Smart City depends on the analysis of past and present performance. However, it also depends on the ability to analyse data, such as time, temperature, or weather. The abilities of cities or tools to analyse relevant information, and thus create appropriate strategies, will help determine future success.

Other drivers include the use of content and information to improve city services, as well as the continued and efficient use of environmental and economic resources.

As an application, CrossCult offers the potential to provide technological services to enhance location's connectivity. As mentioned, interactive features, combined with the ability of citizens to provide feedback and receive recommendations, all will contribute to the empowerment of individuals in a community. Detailed statistics regarding the use and information of the application will improve the efficiency of the city or organisation that uses the tool.

The evaluation into the drivers of the various industries, in conjunction with prior analysis into industry characteristics and competition, provides the ability to construct a representation of the primary variables present in each industry. These variables are important to consider in the understanding and comprehension of the economy. They reflect the defining characteristics that differentiate each industry, in addition to drivers present within the sector.

## **5.4. Stakeholder Survey**

To complement the secondary data that has formulated the basis of this report, a survey of stakeholders and potential clients was conducted. The survey consists of inquiries regarding characteristics of respondents, as well as questions regarding CrossCult technologies.

### **5.4.1. Survey Plan and Structure**

#### **5.4.1.1. Target Population**

The survey was created with the intent to target a portion of potential stakeholders of CrossCult. This list includes small businesses, foundations, universities, municipalities, cultural institutions, as well as other organisations that can potentially use CrossCult in their operations.

#### **5.4.1.2. Sampling Frame and Sample Size**

The collection of contacts and individuals was completed primarily through exploring the current and past contacts of consortium members. As institutions and businesses that are

involved in several of the market sectors of interest, CrossCult partners generally maintain relationships with organisations that resemble the potential users of the platform.

Several different tactics were employed in order to create a sampling population. GVAM contributed a broad list of approximately 5100 contacts with potential connections to the sectors explored, while other partners provided the survey to specific institutions and organisations that would be likely to answer the survey, or may be especially relevant to the platform development.

#### **5.4.1.3. Survey Methodology and Procedures**

The questionnaire was created and hosted on Formstack, an online survey platform. Due to the exploration of the Spanish market, in addition to the number of contacts provided by GVAM in the country, the survey was created and distributed in both Spanish and English.

The questionnaire covered five main areas:

- General information about the participant and his or her work
- Basic information regarding the organisation that the participant worked at
- Information regarding the needs of the clients, users, or visitors of the organisation
- Inquiries regarding the potential interest of the organisation in a wide variety of functions that the CrossCult platform can provide
- Questions regarding the possible methods of integration of the CrossCult platform with the organisation

The survey was distributed through an email containing a link to the survey, where respondents were encouraged to respond and contribute to the development of the platform.

Within the survey, logic was applied in order to present different questions to different respondents. The majority of this logic was based on the role of the participant, with those in management positions receiving mostly all questions, while those in a staff position were presented information that was more likely common knowledge within the organisation.

In the analysis of the survey data, all results were coded according to the category of answers, primarily to better understand the qualitative information. A frequency analysis was completed for the results of every question, with other tests conducted as necessary to explore relevant connections.

The survey was completed by 141 individuals representing unique organisations.

#### **5.4.1.4. Survey Limitations**

Several factors posed challenges in the distribution of the survey and collection of responses. The survey was rather long due to the depth of questions explored. Although the time it took in order to complete the survey varied based on the work function of the participant, as well as his or her speed in taking the questionnaire, the length did provide an obstacle in receiving a higher number of responses.

The sampling size is likely inflated, as some of the contacts that received the email from GVAM were duplicates, belonged to the same organisation, or the emails were no longer active.

The survey had specific intentions in its questions, as such it did not provide an extensive number of questions which required elaboration or detailed responses. Further research and interactions will be completed with potential stakeholders through expert interviews and one-on-one contact in latter stages of the project in order to supplement this information.

In analysing the data, several limitations arise due to sampling size. In distributing the survey, a broad variety of stakeholders received the information, including museums, to cultural agencies, to educational institutions, to consultants. The unique qualities of many organisations make it difficult, and inaccurate, to group some together. Thus, while 49 institutions may be classified as museums, only 3 are considered research institutions. Although the answers of these three institutions are valid and important in the analysis of the overall survey, it is impossible to extrapolate statistically accurate and significant information about research institutions.

If possible, cross tabulations will be completed in order to obtain a more detailed analysis of the responses to various questions, however, such tactics will be confined only to groups or sectors that maintain a sizeable number of responses.

#### 5.4.2. Respondent Roles and Functions

A primary goal of the questionnaire was to obtain a wide variety of perspectives, in terms of the work role of individuals and their functions. While the survey was indeed limited to contacts with connections to the general market environment that CrossCult is exploring, there remain a wide variety of subsectors and industries of interest that are necessary to explore.

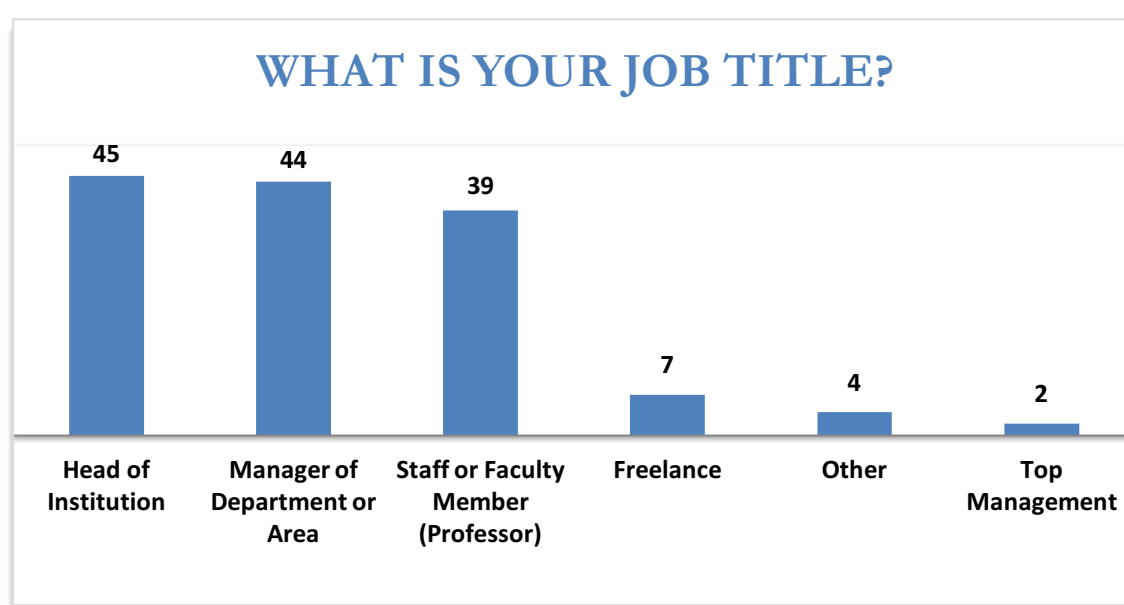


Figure 5 Role of Respondents in Organisation. All numbers represent number of respondents

Survey respondents represented a fairly equal share of perspectives across the different levels of their respective organisations, with regards to management and staff positions. Freelance workers also contributed with an outside perspective of their industries.

With regards to the work function of those who were not in a top management position, answers also varied. While 45 individuals participated in content production, fields such as communications, technology, and business strategy also saw high participation. Other fields with representatives included sales, marketing, and project design.

### 5.4.3. Organisation Information

A variety of organisations and institutions shares similar importance to a breadth of individual backgrounds. Questions posed in this section aimed to identify the main product or service provided by the institution of the respondent, as well as the sector in which the organisation might belong. These questions were posed to all except those who indicated freelance work.

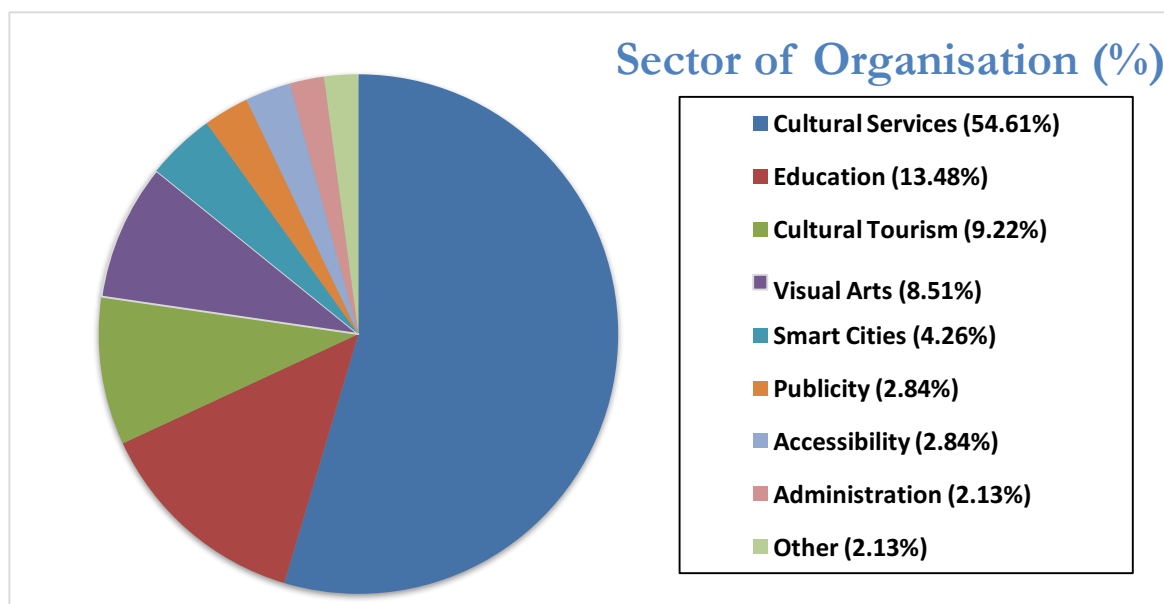


Figure 6 Sector of Organisations Represented. All numbers represent the percentage of respondents who indicated such sectors

Those who answered the question also worked in a variety of backgrounds and sectors, with Cultural Services as most prominent option. When asked to elaborate further upon the type of organisation represented, 49 respondents indicated a museum or monument, 21 indicated cultural agencies, 12 suggested educational institutions, 11 described municipalities, and remaining respondents indicated a vast of other business types, including consultants, research centers, technology-centered businesses, and firms that work in cultural conservation, amongst others.

Out of the 134 organisations represented 66 are private, 55 are public, and 7 are a mixture, with 4 nonprofit organisations and 2 NGO's. In terms of size, 53 organisations have fewer

than 10 employees, 39 have between 11 and 50 employees, and 51 have more than 51 employees.

In order to better understand the capabilities, limitations, and operations of the organisations with relation to technology, respondents were provided with a list of tools and asked to indicate if their organisation used a tool, and the method of implementation. Options included the use of in-house services, such as resources within the organisation, the use of external services, such as contracting or using the services of other firms, using both in-house and external services, and not using a tool at all.

**Table 11 Implementation of Technology Tools.** All numbers represent the number of respondents that indicated each option.

<b>Tool</b>	<b>In-house Services</b>	<b>External Services</b>	<b>Both in-house and external services</b>	<b>The tool is not used</b>
<b>Web or Blog</b>	77	7	50	6
<b>Mobile Application</b>	32	24	28	56
<b>Visitor Guide</b>	42	17	25	56
<b>Virtual Reality</b>	21	18	11	90
<b>Video Games</b>	9	11	8	112
<b>Social Media</b>	90	11	30	9
<b>Beacons / Positioning</b>	15	14	13	98
<b>eBooks / Publications</b>	52	13	30	45
<b>Video Production</b>	42	31	36	31
<b>Online Marketing</b>	77	7	50	6

In analysing these numbers, each option presents both advantages and disadvantages. The indication of not using a tool suggests either a lack of need, or a lack of an appropriate service to provide it. The use of in-house services indicates that organisations have the necessary resources; however, a possibility exists that they could use an external service if an opportunity presents itself. Likewise, the use of external services suggests that firms have found a service provider, although an opportunity could arise if a more efficient provider exists.



It is clear that the use of video games, beacons and positioning technology, and mobile applications are the least popular tools on a broader level, however, this could be due to diversity of industry, or perhaps a lack of resources. Such technology can be more expensive than other tools, and thus smaller organisations may be unable to afford investments.

To briefly analyse this, cross tabulations were completed considering size of organisation with tools that are not commonly used.

For Mobile Applications: 54.7% of small organisations did not use the tool, 30.7% of medium-sized enterprises, with 21.5% for larger organisations.

For Visitor Guides: 47.1% of small organisations did not use the tool, 30.7% of medium-sized enterprises, with 31.3% for larger organisations.

For Video Games: 84.9% of small organisations did not use the tool, 71.8% of medium-sized enterprises, with 66.7% for larger organisations.

For Beacons and Location Technology: 69.8% of small organisations did not use the tool, 74.3% of medium-sized enterprises, with 50.9% for larger organisations.

Such statistics suggest that there is a reoccurring theme in that smaller organisations are less likely to use some of the more complex tools than organisations of larger size.

In contrast, online marketing, websites, and social media use are all common, and largely completed with in-house resources, a sign of the prominence of the technologies in modern society, regardless of organisational factors.

Using the same tools, respondents were also asked to rate their level of satisfaction, from not satisfied to satisfied, of the performance of their organisation with regards to the tool with an option to not answer. These questions largely experience high non response rates, with between 40-83 respondents opting not to answer on 6/10 questions.

Tools in which respondents were largely satisfied include:

- Social Media: 86/140
- Web or Blog: 84/140
- Video Production: 66/140

The popularity of social media and websites align with the large number of institutions that use the tools, indicated earlier. Interestingly, online marketing, an additional common tool, had only 50 respondents indicate satisfaction.

Tools in which respondents were not satisfied include:

- Web or Blog: 23/140 with 25 answering neutrally (8 not providing an opinion)
- Virtual Reality: 18/140, with 26 answering neutrally (69 not providing an opinion)
- Video Games: 17/140, with 25 answering neutrally (83 not providing an opinion)

The high levels of non-response make it difficult to draw conclusions as to a lack of satisfaction – it is a possibility both that individuals did not have a strong opinion, or were not comfortable in sharing such thoughts. Unlike the tools assigned high satisfaction, these tools are largely different than those analysed for a lack of popularity in the previous question (mobile applications, visitor guides, etc.). Potential causes for a lack of satisfaction could include expectations – the widespread use of web or blog sets higher expectations, thus individuals are not satisfied. On the other hand, beacons are not exceedingly popular, thus strong disapproval does not exist.

The survey also inquired as to how these tools might be used in common industry activities. Respondents were asked to indicate if their organisation takes part in an activity, and the method of implementation.

**Table 12 Activities of Organisation.** All numbers represent the number of respondents that indicated each option.

Activity	We currently accomplish this internally	We currently subcontract this task	We do not support this task, but would accomplish it internally	We do not accomplish this task, but would consider subcontracting it	This task does not apply to our organisation
<b>Production of Content: text, video, audio, 3D, etc.</b>	99	22	6	10	3
<b>Purchase of content or pay-per-use from other companies/institutions</b>	24	16	15	17	68
<b>Content indexing(e.g. ontology development)</b>	59	11	14	16	40
<b>Creation of user profiles and targeted analysis for portfolio adaptation</b>	36	10	21	22	51
<b>Installation and management of IT communication services (such as WIFI, access to Internet)</b>	50	24	14	22	30

The most relevant answer for the CrossCult platform is those that do not currently complete a task, but would consider doing it through either internal services or subcontracting. This

suggests the task still does apply to their organisation and industry. While these numbers are largely smaller than those indicating a current realisation of the activities, they do present opportunities.

#### 5.4.4. User, Visitor, and Client Information

While the CrossCult platform is designed to be provided to entities and organisations, in many situations it may be used by individuals who are clients or visitors of said organisation. As such, it is important to understand the market that potential stakeholders serve, as well as the primary needs of those individuals, as they resemble the needs and drivers of the respondents. Themes of questions included the demographics of clients, the lifestyle / status of clients, as well as the primary needs of those who the organisation serves.

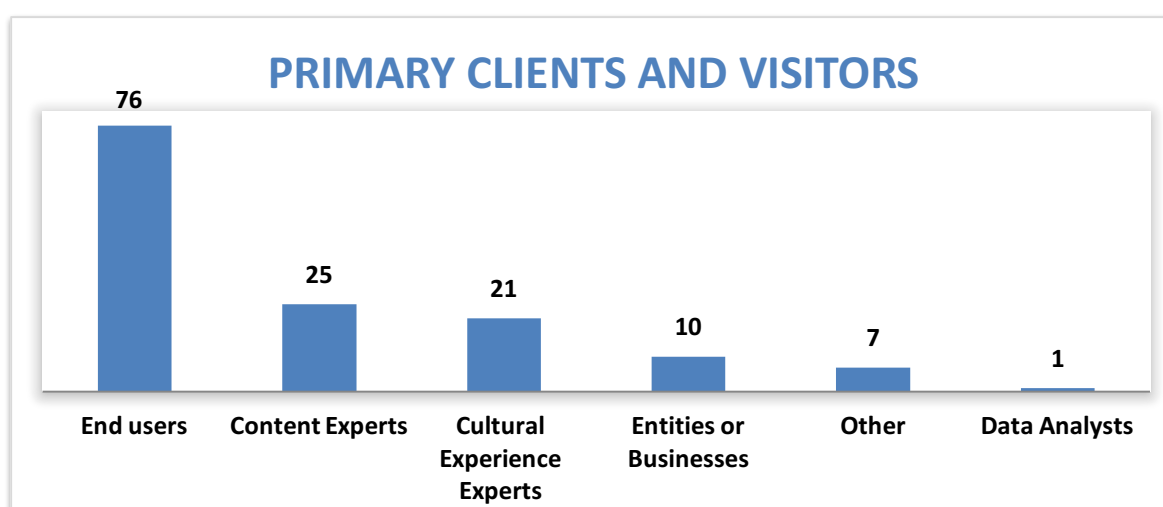


Figure 7 . Primary Clients, Visitors, and Users of Organisations. All numbers represent the number of respondents.

Respondents were asked to indicate the type of client, user, or visitor they primarily serve. The majority suggested end users, such as visitors, tourists, and students. Others indicated content experts, such as museum curators, and cultural experience experts, such as managers or editors of cultural material

Nearly 70% of respondents suggested clients are primarily adults, between the ages of 30-60. This was followed by 18% who indicated young adults, (15-30), with the remaining selecting children, seniors, and other categories.

Table 13 . Needs of Clients and Users. All numbers represent the number of respondents that indicated each option.

Need	1 (Not Important)	2	3	4	5 (Important)	Don't Know or N/A
To be informed	6	2	20	35	69	8
To be entertained	6	6	9	32	78	9
To learn	4	3	15	35	78	5

<b>To teach</b>	8	21	25	24	50	12
<b>To interact</b>	4	10	29	34	51	12
<b>To reflect</b>	4	7	31	45	43	10
<b>To receive recommendations</b>	8	17	25	40	32	18
<b>To give recommendations or feedback</b>	14	24	27	26	29	20
<b>To play</b>	21	18	34	27	19	21
<b>To discover their location</b>	17	16	26	21	34	26

Asked to describe their target visitor in terms of status, 46 participants selected individuals, 28 selected larger groups, and 21 selected families. Thirteen respondents suggested smaller groups, or multiple types of clients, with 9, 5, and 5 selecting couples, entities or institutions, and other categories respectively.

Lastly, respondents were asked to indicate, on a Likert Scale from 1-5, the needs of their clients, users, or visitors, according to predetermined categories.

The ratings provide a depiction of the needs of clients of organisations. Entertain and learning, for example, is a top need for the visitors of 78 institutions, whereas activities with relation to recommendations do not share the same high level of necessity.

#### 5.4.5. Interest in CrossCult Services and Technologies

The fundamental section of the survey, this section explores the interest of stakeholders in services of CrossCult related to the development of the application, use of the application by individuals, as well as the analytical and statistical information the application could provide post-use. Results of this section allow CrossCult to gauge the interest of potential clients in the platform, as well as which functions are considered most intriguing. Such information provides the opportunity to further explore the exact implementation of CrossCult technologies, and the breadth of services it includes.

The three tables below represent the answers of respondents when asked about their organisations potential interest in features that could be used in the development of an IT application, during the use of an IT application by individuals, and in the analysis of the use of an IT application.

## Development of an Application

Table 14 Development of an IT Application. All numbers represent the number of respondents that indicated each option.

Which of the following features would be interesting for your organisation or help in the development of your IT applications?	1 (Not Interesting)	2	3	4	5 (Very Interesting)	Don't Know or N/A
Content creation and update	10	10	28	29	45	9
Definition of user profiles and target groups	8	11	24	36	43	9
Access and management of knowledge (content) databases from other institutions	9	15	32	36	30	9
Integration of Context Awareness Tools (weather, traffic, etc.)	12	14	37	28	27	13
Design of games (including player teams, score halls, etc.)	22	15	26	31	23	14
Design of predefined tours or paths based on databases of content	7	8	24	27	51	14
Creation of social network tools instead of third party platforms	22	19	38	27	17	8
Design maps, timelines, or advanced graphs for locating content	5	9	39	25	38	15

Those which garnered the most responses as being very interesting include the definition of user profiles, the creation of content, and the creation of predesigned tours based on such content. The higher scores for the creation of tours as well as the design of maps both suggest an interest in location recognition and navigational features.

The creation of social network tools as well as the design of games both faced less enthusiasm from respondents. The lower interest in the design of games aligns with previous questions, in which “to play” was not considered a prominent need for clients of organisations.

### Use of an Application

Table 15 Use of an Application. All numbers represent the number of respondents that indicated each option.

Which of the following features would your organisation be interested in related to the use by clients of an IT application?	1 (Not Interesting)	2	3	4	5 (Very Interesting)	Don't Know or N/A
<b>Offer content for Social Profiles (Facebook, Instagram, etc.)</b>	13	12	30	42	17	17
<b>Offer content selected from predefined criteria designed by my company or institution</b>	3	7	20	54	37	10
<b>Offer recommendations based on spontaneous user interaction</b>	3	5	38	44	25	16
<b>Offer recommendations based on context awareness (positioning, weather, etc.)</b>	7	16	33	26	31	18
<b>Offer content recommended by other users</b>	5	15	34	39	22	16
<b>Allow users to interact with others, using Internet</b>	10	14	33	30	25	19
<b>Allow user to create groups, chats, or threads of comments about a topic</b>	12	27	35	20	18	19

Few of these activities appear to inspire the high amount of interest, or disinterest, as those regarding the development of an application, with nearly all succeeding most in the middle range. The highest interest appears to support the offering of content selected from predefined criteria, which mirrors similarities with the previous question, in which the design of tours based on content and the creation of content both were popular.

## Analysis of an Application

Table 16 Analysis of an Application. All numbers represent the number of respondents that indicated each option.

Which of the following data that the CrossCult platform can provide would your organisation be interested in?	1 (Not Inter- esting)	2	3	4	5 (Very In- teresting)	Don't Know or N/A
Demographic info of user: age, sex, nationality, language	8	12	19	33	45	14
User knowledge and interests: art, literature, gaming, history	2	11	19	35	51	13
User personal contact data (email, telephone, social media)	8	21	23	32	34	13
User generated content: comments, reflections	4	11	25	39	45	7
Statistics on activity and usage levels	3	7	22	49	42	8
User reaction to content: recommendations and suggestions	1	7	20	46	50	7
User preferences on application: favorite topics, preferred information	2	2	19	53	45	10
Methods in which user interacts with organisation (email, social media, in person etc.)	3	12	26	42	39	9

Positive reception to nearly all post-use services is evident, with clear trends towards the upper levels of interest. The higher ratings of user interests, user preferences, and user reaction suggests a desire to better understand the psychographics and behaviour of users, as opposed to solely demographics and personal data, although these characteristics did maintain respectable ratings.

In analysing the various reactions to the services from each stage of an IT application's development, it is important to consider potential reasons and causes for differences in interest. While none of the functions listed caused a large lack of interest, some, particularly in the use of the application, lacked the high intrigue of others. These are areas in which further exploration is necessary, through testing as well as further primary research in the form of expert interviews.

#### 5.4.6. The Integration of CrossCult in an Organisation

While the actual functions of the application are clearly essential in the technical development of the application, it is also important to consider the possible methods of integration of the platform in the development of the business model. This section included inquiries regarding the business models that stakeholders thought were suitable for the platform, the department in the organisation that would decide to use the platform, as well as potential restraints for using the application in their operations.

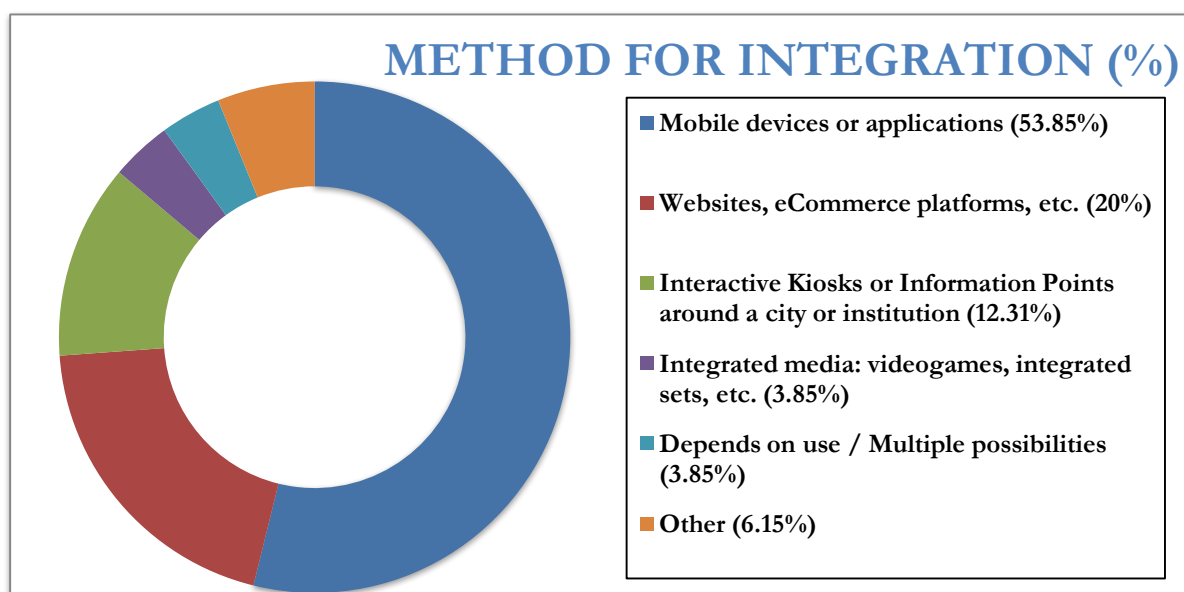


Figure 8 . Potential Methods of Integration of CrossCult Technologies. All values are presented as a percentage of those who responded to the question

Respondents were asked the best way to integrate the CrossCult technologies into a product. A majority indicated that a mobile device or application would be the best strategy, followed by a web platform, interactive kiosks, and integrated media. Multiple respondents suggested that a combined strategy would be most effective, allowing clients to access through both a web platform and application, for example.

Participants were also asked which department would make a decision to purchase and integrate CrossCult technologies. This question intends to provide information as to the parts of institutions and businesses that the CrossCult team might interact with most. This question was posed to those in management roles, as such, there were only 92 responses. Out of those who answered, 29 indicated management would make the decision, 22 suggested Market Intelligence or Business Development, 20 suggested Marketing or Dissemination, 10 answered Sales, and a scattering of others implied technology, design, or other.

These participants were also asked as to the primary reason their organisation would not adopt CrossCult, with 51 out of the 92 replying that the cost of the platform is the main



factor. A shortage of resources was selected by 14 respondents, and an equal amount suggested there could be doubts on the payoff of the investment. Other answers included that the frequency of use would not justify a payment (5), the application is not applicable to their organisation (4), time needed for integration (1), and lack of knowledge (1).

Lastly, those who indicated they were a head of an organisation were asked to select a business model, or multiple, they thought compatible with the CrossCult technologies. As top managers, they have a unique perspective and experience with regards to the subject. Presumably, the respondent could indicate a model they would be comfortable with in purchasing the technologies.

The choices resembled those explained in the Market Environment Analysis section of this report. The most popular model was an individual and customised contract, selected by 41 respondents. This was followed by Licensing & Maintenance, Software as a Service, and other, non-conventional models, such as sponsorship. The varied responses here, combined with the combinations seen in the competitive analysis, suggest that a combination of models may work best.

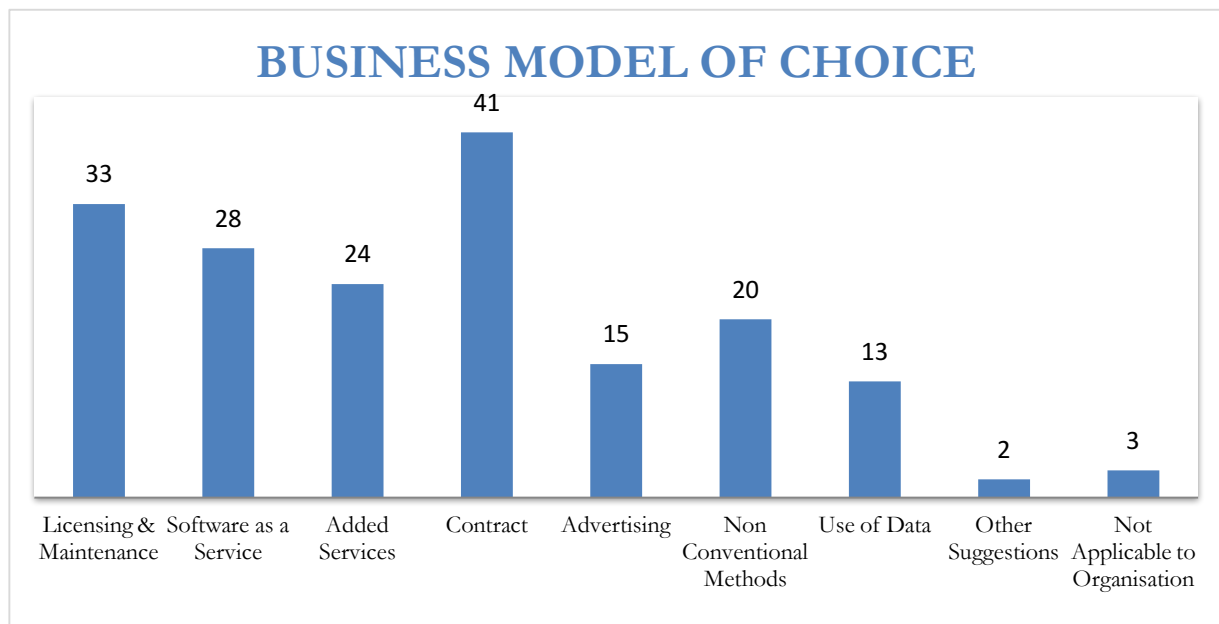


Figure 9 Primary Clients, Visitors, and Users of Organisations. All numbers represent the number of respondents.

## 5.5. Conclusions of the Stakeholder Evaluation

Through an analysis of industry market trends, in combination with a detailed questionnaire of potential stakeholders of the project, this phase provided important information that can support the development of the CrossCult platform as well as the creation of a business strategy.

As CrossCult seeks to reinvigorate cultural industries, it remains important for the consortium to understand the main market drivers and the needs of the industries it hopes to serve.

Through both secondary research and the survey, several common attributes present in the market were made clear: a need to adapt to technology, a desire to improve the presentation, visualization, and management of content, and the need to engage with individuals and create a personal experience.

It is also clear that the rise of data in society will be an important factor for institutions in the near future. Within the survey, individuals often indicated their interest in analytical tools and the ability to learn more information from the platform.

While the broad diversity of stakeholders and opinions makes it difficult to accurately cross-examine trends and responses across the survey, it does appear that in most situations, interests and needs are fairly similar regardless of industry, size, or role of respondent.

The analysis of stakeholders should not end with this research. It is important that throughout the development of the platform and business strategy, CrossCult continues to engage stakeholders through conversations, and continues to research how the platform can best appeal to the market. The findings of this initial research can be pursued in expert interviews and other forms of primary research thus addressing any remaining questions and curiosities.

## 6. Phase V: Analysis and Conclusions

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### 6.1. Report Review

The primary goals of Deliverable 6.1 included a definition and analysis of market industries and the identification of variables and drivers present within the market environment.

As a complex product that provides numerous services and can satisfy a wide variety of needs, it is natural that the market and industry outlook for CrossCult is multi-layered. Research completed in the initial phase of the report demonstrates that there are numerous sources of data and perspectives with regards to culture and technology that can contribute to the development of the platform and the knowledge of those interested in the market environment. Further analysis revealed the presence of five optimal industries for market entry. These industries, with segments and subsectors, focus on the ability of CrossCult to integrate technology with culture in an educational and entertaining manner, for all individuals and organisations.

Secondary research thus far has illustrated that regardless of industry, from cultural tourism to Smart Cities, there is a clear opportunity for an application that can contribute and enhance the experience of its users. Through content creation, geopositioning, recommendations, and social interactions, an application such as CrossCult can spur change in the market and successfully aid others in reinterpreting history and culture.

At this stage of research, it is prudent to maintain an open position towards all industries explored. The compatibility of the product, in addition to the growth and opportunities present within each industry, suggest that further consideration will be necessary as a business model is developed. It is important to remain conscious of the serviceable markets, and thus non serviceable markets, available in each market, as they will likely maintain a position of great interest for the platform.

The knowledge that there are several industries open to enter will facilitate the development of a business model, and ultimate market strategy. It will be essential to consider how revenue plans, as well as marketing tactics, will integrate within an industry. Such factors, in addition to the quantitative and qualitative research in this report, will permit conclusive results as to the best market industry for the CrossCult platform.

The current global environment has ensured that regardless of industry, organisations throughout Europe are experiencing a time of evolution and adaptation. The importance of data technology, personal experiences, community engagement, as well as technological integration is all prominent drivers in the operations of both businesses and cultural institutions.

Stakeholder conversations in addition to responses to surveys have indicated certain services that appear more popular than others, such as the analysis of data and innovative manners to manage and present content. These interests align with research from throughout the

report, which suggests that these services should be a principal consideration in the development of a platform.

## 6.2. Market Entry Checklist

The study thus far has illustrated the number of complexities present in the development of the CrossCult platform: the number of sectors and subsectors, coupled with their opportunities and threats, the large presence of both direct and specific competition, and the difficulty in operating with a single business model.

In future sections of the report, an analysis will be conducted in order to determine the best industries, models, and strategies for the platform moving forward. In the decision to select a geographical market and industry, a number of questions should be considered. The successful recognition of answers to each question suggests an appropriate level of preparation for market entry. At this point in business development, it is not possible to acutely answer each question, thus signifying further research is needed in order to achieve success.

- ☐ Does the size of the industry justify the entry?
  - Is there significant market value which CrossCult can benefit from?
  - Will the industry grow in the future or fall stagnant?
  - Can the platform build upon momentum of this entry to increase future success?
- ☐ What is the specific need of the industry or sector?
  - Which functionalities appear most applicable to the industry?
  - What does the industry or business hope to achieve with the help of the CrossCult platform?
- ☐ Is there a clear and wide-spread need for the CrossCult platform and its services?
  - Are there indications from primary or secondary research that the platform would be well-received?
  - Is the need common across multiple institutions and organisations in the industry?
- ☐ What is the competitive advantage of CrossCult in this industry or market?
  - What services does CrossCult provide that others currently operating do not?
- ☐ Will our business model be appropriate for the industry?
  - Will any adjustments need to be made to ensure that organisations are willing and capable of participating?
- ☐ Does the market or industry pose any threats/problems/regulations that could provide difficulties?
  - What is the plan of CrossCult to overcome these problems?

- ☐ Are there specific subsectors or individual organisations that will be prioritized?
- ☐ How will our clients gain access to the platform?
  - In addition to the business model, what price will be charged, and how what is the structure of payment?
  - In what way will the platform and technology be distributed?
- ☐ How will CrossCult reach potential clients?
  - What type of publicity and outreach strategies will be conducted?
  - How will the platform market itself to encourage sales?
  - How will the platform differentiate itself from pre-existing competitors?
- ☐ How will the platform react to any adverse situations?
- ☐ What will be the determinants of success in this market?

To summarize these questions, in addition to other prominent drivers and factors, key variables to consider include: size, economic value, price as a product, distribution channels, promotion strategies, ease of communication, competition, diversification, and the importance of community and engagement within the industry or organisation.

Based on information gathered thus far, the following tables provide a brief illustration of the comparisons of the potential market sectors based on these questions and factors. At this time, some questions may not be addressed due to the stage of research and development – it will be difficult to address all variables without the further exploration of the market conducted in future deliverables. As an example, marketing and communication strategies for each sector are a focus of future research, as is further information regarding business models.

With regards to the values, all economic values are presented in billions of euros, and represent the value of the European market for the Total Available Market, except for Smart Cities, in which the global value is indicated.

**Table 17 . Industry Variable Analysis. An industry variable analysis for Cultural and Creative Industries, Cul-tural Tourism, and Cultural Services**

<b>VARIABLE</b>	<b>CULTURAL AND CREA-TIVE INDUSTRIES</b>	<b>CULTURAL TOURISM</b>	<b>CULTURAL SERVICES</b>
<b>Economic Value</b>	€660	€219.8	€300
<b>Market Needs</b>	Community, involve-ment, personalisation, aggregation and recom-mendation	Marketing, publicity, enhanced experi-ences, functionalities	Availability of infor-mation, importance of data, empower-ment of people, Ad-aptation
<b>Level of Competi-tion</b>	High – Many online plat-forms and tools facilitate advertising and gaming. Large industry also en-courages other competi-tion	Medium – There are few competitors that provide an inte-grated platform to a large market, as op-posed to a specific venue.	High – Many plat-forms for content management and ap-plication creation
<b>Importance of Community and Engagement</b>	Medium – It is a growing need, but relative to other industries, it is not as prominent	Medium – Visitors should be engaged in their experiences	High – interaction by visitors and clients is very important
<b>Price as a Driver for Individual Consumers</b>	Due to level of competi-tion, price can be an im-portant consideration in this industry	Visitors seek unique experiences, thus price is not the pri-mary factor.	Price is not consid-ered to be a primary factor – content is the main driver
<b>Diversity in Stakeholders</b>	High – Sector consists of a wide variety of indus-tries, businesses, and or-ganisations, all with dif-ferent goals	Medium –There ex-ists a variety of ser-vices and products within the sector, al-though the sector of cultural tourism is well-defined.	Medium – While the sector has a variety of smaller industries, museums and monu-ments are prominent actors that comprise the majority of the market

Table 18 . Industry Variable Analysis. An industry variable analysis for Education and Smart Cities

VARIABLE	EDUCATION	SMART CITIES
<b>Economic Value</b>	€672	€288.6 (global)
<b>Market Needs</b>	Differences in education, rise of technology, globalisation	Importance of a network, citizen abilities, analytics.
<b>Level of Competition</b>	High – Wide variety of educational platforms and tools that are becoming popular, specifically with regards to edtech.	Low/Medium – Novelty of industry means fewer competitors, but competitors are more targeted.
<b>Importance of Community and Engagement</b>	High – engagement of students and individuals is important	High - Smart City should provide opportunities for governments, businesses, and citizens to engage.
<b>Price as a Driver for Individual Consumers</b>	Content is considered to be more important	Smart Cities seek low-cost technologies to improve efficiency.
<b>Diversity in Stakeholders</b>	Low – Educational institutions and course providers are the prominent actors in this industry	Low – Stakeholders are generally cities or administrations looking for increased efficiency in technology.

### 6.3. Future Research

As development continues, the primary findings of this report will be further explored. The documentation of secondary sources and the stakeholder questionnaire will be supplemented with additional research, specifically from other parts of the project, such as the pilot venues. Likewise, while the entirety of this report will not be of relevance to each part of the project's development, various findings and results can aid in the development of other aspects of the platform.

Future reports will conduct a more thorough analysis of business models, with consideration to risks, opportunities, potential investments, and compatibility. As a clear business model begins to form, other projects will include the development of marketing tactics and strategies to ensure short term success and long term viability. A core consideration in the creation of a thorough business strategy is its potential integration and use in various market industries. As such, this market assessment will facilitate and provide essential support to future tasks in the development of a business strategy. While its information will be applied in the following research tasks, additional research will permit continuous education regarding the unique qualities and characteristics of each industry. With a new and detailed perspective of the various market industries and drivers present in the business environment, the project can continue to evolve into a platform that will spur innovation in culture.

## 7. Appendix

### 7.1. Appendix of the Pre-Exploration Phase

#### 7.1.1. General Information Sources

This section includes general information, trends, and analysis regarding culture, technology, and predefined industries. The majority of this information is not relevant to particular geographical markets, and can be broadly applied to gain a better understanding of the overall market.

1	Spanish Cultural Heritage Institute ( <a href="#">link</a> )
2	Encuesta de Gasto Turístico EGATUR ( <a href="#">link</a> )
3	Asociación Española de Museólogos ( <a href="#">link</a> )
4	España en Europa – TourSpain ( <a href="#">link</a> )
5	Diez nuevos nichos de clientes marcan tendencia en el sector turístico – Mr. Turismo ( <a href="#">link</a> )
6	Educación y Turismo asociado a la enseñanza del Español – Plataforma del Español ( <a href="#">link</a> )
7	The situation of the performing arts sector in Spain after the crisis.
8	The Travel and Tourism Competitiveness Report – World Economic Forum ( <a href="#">link</a> )
9	Digitising our cultural heritage – European Commission ( <a href="#">link</a> )
10	Timeline of digitisation and online accessibility of cultural heritage ( <a href="#">link</a> )
11	Digital Heritage – Progress in Cultural Heritage: Documentation, Preservation and Protection – 5 <sup>th</sup> International Conference, EuroMed 2014 – Google books ( <a href="#">link</a> )
12	Understanding the Impact of Digitisation on Culture – European Council ( <a href="#">link</a> )
13	The Digital Single Market – Cultural Base ( <a href="#">link</a> )
14	Digital Cultural Heritage: European targets – Digital Meets Culture ( <a href="#">link</a> )
15	Compendium of Cultural Policies and Trends in Europe – Council of Europe ( <a href="#">link</a> )
16	International Journal of Heritage in the Digital Era ( <a href="#">link</a> )
17	Culture – Current Projects – UNESCO ( <a href="#">link</a> )
18	Cultural creation and social innovation as the basis for building a cohesive city - Juan-Luis Klein and Diane-Gabrielle Tremblay ( <a href="#">link</a> )
19	Cultural Creation Myths – ArtsEdge ( <a href="#">link</a> )
20	Culture As A Factor Of Social And Economic Development - The Polish Experience - Karolina Tylus ( <a href="#">link</a> )
21	Tourism in the US - Industry Market Research Report – MarketResearch.com ( <a href="#">link</a> )
22	Fitur Know-How and Export ( <a href="#">link</a> )
23	Market Place of the European Innovation Partnership on Smart Cities and Communities ( <a href="#">link</a> )
24	The creative Chain – Canada Statistics ( <a href="#">link</a> )



25	Cultural Industries and Development: A Qualitative Study of Actors within Puebla's Cultural Industries ( <a href="#">link</a> )
26	Monthly Bulletin of Statistics online ( <a href="#">link</a> )

### 7.1.2. Information Sources for Spain

This section provides government publications and databases specific to Spain, separated by industry.

SPAIN <sup>104</sup>	
<b>CCI</b>	<ul style="list-style-type: none"> <li>- Anuario de Estadísticas Culturales 2015 – Ministerio de Educación, Cultura y Deporte (MECD) (<a href="#">link</a>) – <i>Spanish cultural statistics</i></li> <li>- Encuesta de Hábitos y Prácticas Culturales 2014-2015- MECD (<a href="#">link</a>) – <i>Cultural habits and practices survey</i></li> <li>- Estadística de Financiación y Gasto Público en Cultura - CulturaBase - MECD (<a href="#">link</a>) – <i>Statistics about Finance and Public Expense in Culture</i></li> <li>- Market Cultural Report on Spain . Study Model Research (<a href="#">link</a>)</li> <li>- Informe anual del Sector de los Contenidos Digitales en España 2016. ONTSI (<a href="#">link</a>)</li> <li>- Fundación Contemporánea. Observatorio de la Cultura. Barómetro Anual. Febrero 2016 (<a href="#">link</a>).</li> </ul>
<b>CCI: Audiovisual / Multimedia</b>	- Cluster ICT Audiovisual - Madrid Network ( <a href="#">link</a> )
<b>CCI: Gaming</b>	- 15 Anuario de la Industria del Videojuego – Asociación Española de Videojuegos (AEVI) ( <a href="#">link</a> ) – <i>Videogames Industry Anuary for Spain</i>
<b>CCI: Advertising</b>	<ul style="list-style-type: none"> <li>- ‘Marketing Directo’ article about Infoadex 2015 study (<a href="#">link</a>)</li> <li>- Infoadex web (<a href="#">link</a>)</li> </ul>
<b>CULTURAL</b>	<ul style="list-style-type: none"> <li>- Ingresos y gastos del turismo internacional por país, tipo y periodo – Instituto Nacional de Estadística (INE) (<a href="#">link</a>) – <i>Revenue and expense of international tourism by country, type and period</i></li> <li>- Madrid Network – Madrid Tourism Society</li> <li>- Most important travel information sources in Spain in 2015 – Statista (<a href="#">link</a>)</li> </ul>

<sup>104</sup> The search for Spanish data has been performed in Spanish, translating the keywords or phrases when necessary. The webs included are mentioned in Spanish, as they appear during the search.

<b>TOURISM</b>	
<b>CULTURAL SERVICES</b>	<ul style="list-style-type: none"> <li>- Manual ATALAYA. Apoyo a la Gestión Cultural (<a href="#">link</a>) – <i>Information about digital networks, economic value and impact, juridical framework, etc.</i></li> <li>- Estadísticas de Cultura (MECD) (<a href="#">link</a>) – <i>Cultural Statistics</i></li> <li>- Deloitte (noviembre 2015): “Deloitte Mobile Consumer Survey” Principales conclusiones en España (<a href="#">link</a>)</li> </ul>
<b>MUSEOGRAPHY</b>	<ul style="list-style-type: none"> <li>- Estadística de Museos y Colecciones Museográficas - CulturaBase - MECD (<a href="#">link</a>) – <i>Client segmentation and visitor statistics for Spain</i></li> </ul>
<b>EDUCATION</b>	<ul style="list-style-type: none"> <li>- Anuario de Estadísticas Culturales 2016 – Ministerio de Educación, Cultura y Deporte (MECD) (<a href="#">link</a>) – <i>Spanish statistics for Cultural Education Enterprises</i></li> </ul>

### 7.1.3. Information Sources for Europe

This section provides government publications and databases specific to Europe, separated by industry.

<b>EUROPE</b>	
<b>CCI</b>	<ul style="list-style-type: none"> <li>- Creating Growth. Measuring Cultural and Creative Markets in the EU. (<a href="#">link</a>) -<i>Market and employment data</i></li> <li>- Strategic framework - European Agenda for Culture (<a href="#">link</a>)</li> </ul>
<b>CCI: Audiovisual / Multimedia</b>	<ul style="list-style-type: none"> <li>- Feasibility study on data collection and analysis in the cultural and creative sectors in the EU 2015 – KEA European Affairs (<a href="#">link</a>) – <i>Data on CCIs and museums</i></li> </ul>
<b>CCI: Gaming</b>	<ul style="list-style-type: none"> <li>- The Economy of Culture in Europe (2006) Delineation of the cultural &amp; creative sector (<a href="#">link</a>) – <i>Gaming and other information</i></li> <li>- A new artistic approach to virtual reality. Nesta (<a href="#">link</a>)</li> </ul>
<b>CCI: Advertising</b>	<ul style="list-style-type: none"> <li>- <a href="#">DEVELOPING THE ENTREPRENEURIAL AND INNOVATION POTENTIAL OF THE CULTURAL AND CREATIVE SECTORS</a> (<a href="#">link</a>) &amp; <a href="#">List of brainstorming session participants</a></li> <li>- LA INFLUENCIA DE LAS <a href="#">NUEVAS TECNOLOGÍAS EN LAS INDUSTRIAS DE LA CULTURA RETOS Y OPORTUNIDADES PARA EUROPA</a></li> </ul>
<b>CULTURE</b>	<ul style="list-style-type: none"> <li>- Culture statistics - cultural participation – Visiting cultural sites – Eurostat (<a href="#">link</a>)</li> </ul>

<b>TOURISM</b>	
<b>CULTURAL SERVICES</b>	<ul style="list-style-type: none"> <li>- <a href="#">Marco Estratégico EC</a> – Strategic framework of the European Comission</li> <li>- Culture statistics - cultural enterprises – Eurostat (<a href="#">link</a>)</li> <li>- Digital Culture 2014: How arts and cultural organisations in England use technology. Research Report. Digital R&amp;D Fund for the Arts (<a href="#">link</a>)</li> </ul>
<b>MUSEOGRAPHY</b>	<ul style="list-style-type: none"> <li>- <a href="#">Europeana</a> - Digitized cultural heritage</li> <li>- White Paper. Europeana Foundation. September 2015 (<a href="#">link</a>)</li> <li>- Mobile Strategy in 2013: an analysis of the annual Museums &amp; Mobile Survey (<a href="#">link</a>)</li> </ul>
<b>EDUCATION</b>	<ul style="list-style-type: none"> <li>- IDATE, Media Strategics. The content industry's fundamentals</li> </ul>
<b>SMART CITIES</b>	<ul style="list-style-type: none"> <li>- Europeana for Smart Cities (<a href="#">link</a>) – <i>Presentation about the role of (digitized) cultural heritage in Smart Cities</i></li> </ul>

#### 7.1.4. Information Sources for the Global Market

This section provides government publications and databases for the global market, separated by industry.

<b>WORLDWIDE</b>	
<b>CCI</b>	<ul style="list-style-type: none"> <li>- <a href="#">Cultural times The first global map of cultural and creative industries</a> December 2015 (EY)</li> <li>- OMC – <a href="#">Expert Working Group on maximising the potential of Cultural and Creative Industries, in particular that of SMEs</a> (3<sup>rd</sup> June 2010)</li> <li>- Creative Industries – Pwc (<a href="#">link</a>) – <i>Detailed description about the industries forming part of it</i></li> <li>- Cultural Economics – Ágúst Einarsson (<a href="#">link</a>) – <i>Information on the market structure</i></li> </ul>
<b>CCI: Audiovisual / Multimedia</b>	<i>Relevant information sources not found</i>
<b>CCI: Gaming</b>	<ul style="list-style-type: none"> <li>- Newzoo Global Games Market Report (<a href="#">link</a>) – Economic and CAGR data</li> </ul>
<b>CCI: Advertising</b>	<i>Relevant information sources not found</i>
	<ul style="list-style-type: none"> <li>- UNESCO - <a href="#">CULTURA Y DESARROLLO</a></li> <li>- UNESCO - <a href="#">Economy Dimension</a></li> <li>- UNESCO - <a href="#">Heritage Dimension</a></li> </ul>

<b>CULTURE TOURISM</b>	<ul style="list-style-type: none"> <li>- Travel &amp; Leisure Market Research Reports &amp; Industry Analysis – MarketResearch.com (<a href="#">link</a>)</li> <li>- World Economic Forum (WEC) - <a href="#">The Travel &amp; Tourism Competitiveness Report 2015</a></li> <li>- UNWTO - Tourism Annual Report 2015 (<a href="#">link</a>)</li> <li>- UNWTO Tourism Towards 2030 Global Overview, (<a href="#">link</a>)</li> <li>- Tourism trends: Tourism, culture and cultural routes - <a href="#">TOURISM TRENDS</a></li> <li>- OECD Studies on Tourism – Tourism and the Creative Economy (<a href="#">link</a>)</li> <li>- OECD (2009) The Impact of Culture on Tourism. (<a href="#">link</a>)</li> <li>- Panorama OMT del turismo internacional (Madrid: OMT, edición 2016) (<a href="#">link</a>)</li> </ul>
<b>CULTURAL SERVICES</b>	<ul style="list-style-type: none"> <li>- <a href="#">Accessible and Inclusive Culture – Promoting access to culture via digital means&amp;Participant list</a></li> </ul>
<b>MUSEOGRAPHY</b>	<i>Relevant information sources not found</i>
<b>EDUCATION</b>	<ul style="list-style-type: none"> <li>- UNESCO - <a href="#">Education Dimension</a></li> <li>- Smart Education and Learning Market by Product – MarketsAndMarkets (<a href="#">link</a>)</li> </ul>
<b>SMART CITIES</b>	<ul style="list-style-type: none"> <li>- Internet of Things (IoT) in Smart Cities Market - MarketsAndMarkets (<a href="#">link</a>)</li> <li>- Smart Cities Market by Solution and Services for Focus Areas - MarketsAndMarkets (<a href="#">link</a>)</li> <li>- How to protect Smart City Cultural Heritage – Telefonica (<a href="#">link</a>)</li> <li>- Technology as a means of protections for our cultural heritage. Leading the IoT pathway. Telefonica Business Solutions (<a href="#">link</a>)</li> <li>- <a href="#">The future of cultural heritage in smart cities - Course, Ravello, 6-9 October 2014</a> (<a href="#">link</a>)</li> <li>- Esmartcity.es – Empresas (<a href="#">link</a>)</li> <li>- Internet of Things (IoT) in Smart Cities Market worth 147.51 Billion USD by 2020 – MarketsandMarkets (<a href="#">link</a>)</li> <li>- Strategic Opportunity Analysis of the Global Smart City Market – Frost &amp; Sullivan (<a href="#">link</a>) – <i>Market data</i></li> <li>- Smart Education and Learning Market by Product and Region - Global Forecast to 2021. MarketsandMarkets.com (<a href="#">link</a>)</li> </ul>

### 7.1.5. Paid General Information Sources

The information below are several sources in which one can pay to receive reports regarding specific topics, such as museums, arts, countries, etc. Occasionally, some information from each website can be found for free.

#### PREPAID INFORMATION SOURCES

- Report Linker: Industry Reports for museums, performing arts, art businesses, etc. ([link](#))(89€ /month for a single user)
- STATISTA – \$49 per month (billed annually)
  - Household consumption expenditure on recreational and cultural services in the European Union (28 countries) from 2008 to 2014 ([link](#))
  - Number of on-demand audiovisual services in the European Union as of December 2015, by genre ([link](#))
  - Annual expenditure on cultural services in the United Kingdom (UK) from 2005 to 2015, based on volume ([link](#))

Number of on-demand audiovisual services in the United Kingdom (UK) as of December 2015, by type ([link](#))

### 7.1.6. Digital Cultural Information

The sources below provide information regarding digital culture, and the integration of technology with culture.

#### DIGITAL SERVICES FOR CULTURAL HERITAGE MARKET

Digital Culture –Digital Single Market - European Commission ([link](#))

Digital Meets Culture – Portal for Gathering Information about Digital Culture ([link](#))

Tourism and Digitalization of Cultural Heritage ([link](#))

Digitising our cultural heritage - Digital Single Market - European Commission ([link](#))

### 7.1.7. Cultural Creation Sources

Sources below provide information regarding the production and creation of culture, and its activity in the economy.

#### CULTURAL CREATION AND PRODUCTION ACTIVITIES

Key role of cultural and creative industries in the economy - Hendrik van der Pol ([link](#))

Culture, Trade and Globalization – Question and Answers ([link](#))

Creation and Production – In Arts ([link](#)) – *Description of the Creation and Production activities*

### 7.1.8. Additional Information

The information sources below are mainly specific to certain industries or markets – while the information is helpful in gaining more knowledge about the overall market, it is difficult to use these sources for general conclusions.

ADDITIONAL INFORMATION
International Journal of Heritage in the Digital Era ( <a href="#">link</a> )
Bratislava ICT Participants list ( <a href="#">link</a> )
Business Model Innovation – Cultural Heritage – Amsterdam & The Hague – The Den Foundation ( <a href="#">link</a> )
The Dédalo software platform was born with the aim of being an open and free work tool that facilitates the work of managing and disseminating Intangible Culture.
The I2CAT Foundation promotes “AUGMENTED HERITAGE”, a new international platform where the last augmented reality technologies and heritage converge.
Annual tourism spending on cultural activities in the United Kingdom (UK) from 2008 to 2013 – Statista ( <a href="#">link</a> )
Direct and total contribution of travel and tourism to the global economy from 2006 to 2015 – Statista ( <a href="#">link</a> )
Public sector expenditure on cultural services in the United Kingdom (UK) from 2011/2012 to 2015/2016 - Statista ( <a href="#">link</a> )
Evolucion and Tendencies of Cultural Tourism – <a href="#">Aprendedeturismo.org</a> ( <a href="#">link</a> )
Spanish-American Portal of Cultural Management ( <a href="#">link</a> )
Mobile Applications for Culture, Heritage, and Tourism Jornades APP
Methodological notes for cultural enterprises – Economic Activity - EMPRESAS CULTURALES
Spanish companies for cultural management and services:  Empresite - <a href="#">eleconomista.es</a> - Empresas de Gestión Cultural  Cultunet - Empresas culturales

Cultural Services
Magmacultura ( <a href="#">link</a> )
Eve Museografia ( <a href="#">link</a> )
European Cluster Alliance (ECA)
European commission - European Networks
European Cluster Collaboration Platform ( <a href="#">link</a> )

## 7.2. Appendix of Exploratory Assessment Phase

### 7.2.1. Other Information

1	CulturalHeritageTourism.org (USA) ( <a href="#">link</a> )
2	City Tourism and Culture (WTO) ( <a href="#">link</a> )
3	Tourism and Intangible Cultural Heritage ( <a href="#">link</a> )
4	Culture and digitalization. Opetus – ja kulttuurisministeriö ( <a href="#">link</a> )
5	The Globalisation of Cultural Trade: A Shift in Consumption. International flows of cultural goods and services 2004-2013. UNESCO Institute for Statistics ( <a href="#">link</a> )
6	The cultural and creative industries:a literature review. 2nd Edition. Justin O'Connor. Creativity, Culture and Education Series. CCE ( <a href="#">link</a> )

### 7.2.2. Subscription Access

1	Museum Association. Museum practice. <i>Mobile phone apps</i> . ( <a href="#">link</a> )
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### 7.2.3. Sterile Links

1	Cultural Tourism DC ( <a href="#">link</a> )
2	What is Cultural Tourism? By Greg Richards. 2003 ( <a href="#">link</a> )
3	UNESCO. Cultural Tourism ( <a href="#">link</a> )
4	In-genio. CulturalTourismSpain.com ( <a href="#">link</a> )
5	Cultural Attractions and European Culture. G. Richards (2001) ( <a href="#">link</a> )
6	The Development of Cultural Tourism: A Review of UK Experience ( <a href="#">link</a> )

7	Eight things we learned from the London Cultural Tourism Workshop ( <a href="#">link</a> )
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### 7.3. Appendix of Market Environment Analysis

1	Yelp – <i>Tourism and consumer information</i> ( <a href="#">link</a> )
2	Booking.com – <i>Travel booking platform</i> ( <a href="#">link</a> )
3	Whatsred – <i>Event notifications from commerce</i> ( <a href="#">link</a> )
4	SmartCityAppHack – <i>SmartCityApp Creators</i> ( <a href="#">link</a> )
5	Layar – <i>Augmented Reality for tourism</i> ( <a href="#">link</a> )
6	El Secreto de Barcelona – <i>Gaming, culture</i> ( <a href="#">link</a> )
7	I-card – <i>Tourism, Augmented Reality</i> ( <a href="#">link</a> )
8	Meet2go – <i>Social Media for events</i> ( <a href="#">link</a> )
9	Quehaces hoy – <i>Ticket sales</i> ( <a href="#">link</a> )
10	Ticketea – <i>Event info and ticket sales</i> ( <a href="#">link</a> )
11	Museu Kids BCN – <i>Museum agendas for kids</i> ( <a href="#">link</a> )
12	Quescou – <i>Cultural Events notification</i> ( <a href="#">link</a> )
13	Spotsuite – <i>Creation of cultural thematic routes</i> ( <a href="#">link</a> )
14	Museo del Prado (Gross) – <i>Cultural app</i> ( <a href="#">link</a> )
15	VanGo Yourself – <i>Recreation of artwork</i> ( <a href="#">link</a> )
16	Minube – <i>Tourism and event app</i> ( <a href="#">link</a> )
17	Filmcat – <i>Real-time connection to urban services</i> ( <a href="#">link</a> )
18	Culture Trip – <i>Web with worldwide touristic recommendations</i> ( <a href="#">link</a> )
19	TripUniq – <i>Touristic routes by locals for visitors</i> ( <a href="#">link</a> )
20	Qué Getafe – <i>Tourism app for Getafe (Spain)</i> ( <a href="#">link</a> )
21	UNAM360 (México) – <i>Virtual guide through the campus</i> ( <a href="#">link</a> )
22	Google Arts & Education – <i>Cultural content</i> ( <a href="#">link</a> )
23	Culture Trip – <i>Recommendation web for tourism</i> ( <a href="#">link</a> )
24	Jansá – <i>Cultural apps and digital marketing</i> ( <a href="#">link</a> )
25	Platoniq – <i>Cultural content developers</i> ( <a href="#">link</a> )
26	EvolMind – <i>E-learning platform</i> ( <a href="#">link</a> )
27	Plataforma Eleven – <i>Educational platform</i> ( <a href="#">link</a> )
28	Neo – <i>Educational platform</i> ( <a href="#">link</a> )



29	Ganesha – <i>Educational platform</i> ( <a href="#">link</a> )
30	Velneo– <i>AppCreator</i> ( <a href="#">link</a> )
31	GameSalad – <i>AppCreator</i> ( <a href="#">link</a> )
32	Octopusapps – <i>AppCreator</i> ( <a href="#">link</a> )
33	Blango.com– <i>AppCreator</i> ( <a href="#">link</a> )
34	Mobincube – <i>AppCreator</i> ( <a href="#">link</a> )
35	Swiftic– <i>AppCreator</i> ( <a href="#">link</a> )
36	Shoutem– <i>AppCreator</i> ( <a href="#">link</a> )
37	AppYourself– <i>AppCreator</i> ( <a href="#">link</a> )
38	AppsBuilder– <i>AppCreator</i> ( <a href="#">link</a> )

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