# ACHILLES AS A MARKETING TOOL FOR VIRTUAL HERITAGE APPLICATIONS

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## Keywords

## Abstract

*Virtual Reality technology has made it possible for people to visit places and enjoy different exciting experiences while remaining at home. It gives an opportunity to enjoy the past at its best. Virtual Reality was introduced in 1929 with interactive training devices that simulated fighter planes. In 1957, the Sensorama simulator was designed which could generate city smells and wind sensations. The need for tourism to become virtual becomes more urgent than ever before. Virtual Reality applications provide this chance, not only in place, but in time as well. This paper presents a guide to the heritage applications' builders and marketers to reach more online users. The paper helps the builder to understand the consumer behaviour for marketing research. The paper illustrates eight levels, with each one leading to the next. The author named the eight levels A.C.H.I.L.L.E.S. Each letter represents a level; beginning with the awareness and ending with the sustainability. ACHILLES represents a sequence that shows three main phases of mobile application usage. It aims for a better management for the online visitors' engagement. This aim can be accomplished through the understanding of the different stages that the online visitors go through. In addition, it shows the correlation between the users and the mobile application.*

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## INTRODUCTION

Due to recent developments and advances in Internet technology and Information development, virtual tourism has increasingly become reality. 3D graphics technology offers a great opportunity to replicate ancient worlds and civilizations. In other words, this 3D technology helps to experience the past at its best. This technology makes the person feels transported to another place, referred to as immersion (Heim, 1998).

Virtual heritage strategies normally focus on the tangible facts of cultural heritage associated with sites and objects, such as graphics and animation. However, virtual heritage projects should also illustrate the intangible features of cultural heritage, such as stories, foods and dances. Both tangible and intangible facts are different but have to be combined by using serious Heritage Applications/Games. Egyptian projects such CULTNAT Institute (Center for Documentation of Cultural and Natural Heritage) have developed more realistic experiences that allow more understanding of, and protection for, touristic sites, monuments and objects. The real-life tourism sometimes creates damage to historic sites and the contextual fabric that endangers the very monuments they are supposed to enrich and support. Several protests have taken place in Venice and Barcelona against the overflow of tourism to their historic cities, and the impact on their everyday life in the city. So "being not-there may safeguard the place" (Champion, 2011), as what virtual heritage would suggest as a solution.

There is consensus that virtual experiences of touristic sites and associated applications will be the language of the future (Curia, 2014). Moreover, those Games/Applications will be the visitors' tool to visualize the old civilizations and become more excited about them. Additionally, online platforms provide archaeology applications for children and students to learn more about the archaeological sites and the unpublished excavations, for example; Archeologia Viva, Archeological Discoveries in History Guide and Great Archeological Discoveries in History Info.

Many authors have tackled the issue of Culture and Heritage Marketing. In 1997, Fiona McLean proved that the theories of marketing developed for manufactured goods are relevant to the experience of visiting a museum (McLean, 1997). In 2009 Sue Mahar and Jay Mahar provided us with proven techniques for successful marketing and branding (Mahar & Mahar, 2009).

Based on consumer behaviour studies and practical experience in tourism, the author chooses eight letters forming the new acronym ACHILLES. It is a sequence comprising eight stages that both online users and developers go through. Each level leads to the next forming a complete solution that helps the developers of virtual heritage applications to understand the needs and behaviours of the online visitors. Moreover, it gives those developers indicators to develop and update the applications to sustain existence. The main aim was to increase visitors and to encourage the online users to have more interaction with the website and the application.

The eight stages of ACHILLES aim to increase the number of the online visitors through the continuous developing of the application according to the visitor status. These eight levels can be identified by three principle phases; pre-application visit phase; on application phase; and post-application visit phase. ACHILLES levels are presented in Table 1.

Table 1. ACHILLES Model (Source: Author)

| | | | |
|---|---|---|---|
| Pre App. Visit | A | Awareness | Knowledge |
| | C | Collecting Information | |
| | H | High Intention | |
| On Application | I | Interaction | Action |
| Post App. Visit | L | Learning outcomes | Reaction |
| | L | Loyalty | |
| | E | Evolvement | |
| | S | Sustainability | |

## AWARENESS (PRE APPLICATION VISIT)

Traveling is becoming a basic requirement for people. People are traveling, but it is obvious that traveling experiences are very different for people in developed countries compared to people in developing countries. People in developed counties have more travel experiences and tourism awareness than those in developing countries due to the better economic situation. There is one clear fact about traveling, regardless of its tangible and intangible benefits: it is expensive and it could cost beyond the affordability of many working and middle class citizens. Virtual heritage/tourism is comparably inexpensive to exploring the real sites, and could be free of charge at times. It is noteworthy that the number of people who can download virtual reality applications are much more than those who can travel. There is no need to carry passports to visit another country. This means that virtual reality heritage applications give an opportunity to those who cannot afford traveling to explore different cultures. These Virtual applications will also help disabled visitors to enjoy the beauty of faraway cultures (Boniface, 1993). Tur4all is a free and user-friendly application being promoted by Vodafone in Spain for visitors with special needs.

A high level of awareness can be achieved through promotions, social media campaigns and word of mouth recommendations, with word of mouth being the most effective way to build awareness (Dilenschneider, 2010). In 2017, the "This is Egypt" promotional campaign won the best promotional video in the Middle East at the General Assembly of World Tourism Organization (WTO). They have more than 250,000 followers on Facebook. Bibliotheca-Alexandrina is another case study and it represents a very good example. The social media promotions of its institute CULTNAT (Center for Documentation of Cultural and Natural Heritage) achieved great success and has more than 30,000 followers. The Center aims to increase public awareness of cultural and natural heritage using all available media and to apply the latest technological innovations in documenting Egypt's cultural heritage, as well as Egypt's natural heritage. The following figure shows a promotion for the National Museum for the Marine Corps, Virginia, USA (See Figure 1).

Figure1. National Museum for Marine Corps Virtual Tour (Source: http://www.usmcmuseum.com)

The virtual heritage applications are channels to build real awareness about actual heritage. Not all Ancient heritages are surviving, and virtual heritage applications can rebuild the ruined sites and show how they appeared intact in the past. Through these applications, users can build their knowledge about heritages and cultures.

## COLLECTING INFORMATION (PRE APPLICATION VISIT)

This level is very much user-led. The users of these virtual applications can be called the Virtual Heritage Visitors or (VHVs). Here VHVs will be eager to know and to learn more about the new technology, and the virtual heritage applications. The process of collecting the information is short since the VHV will easily get answers for very simple questions, for example; what is this application about? What is its name? Who built it? When was it made? Which places does it cover? Where it can be found? It is very easy for the VHVs to answer those questions, especially in the online world. In the online world, distance is a bizarre concept and lack of knowledge is spurious. There are many good methods to find answers; Internet, focus groups, listening sessions, and forums are all good ways to collect data and information (Koch, 1996).

The process of collecting information about culture or heritage takes more time than collecting information about the application. It is an ongoing process, which sparks from the need to know about certain heritage or culture. At this level, the VHV could compare their knowledge with what they visualize on the application. If virtual heritage applications are contributing more facts to their knowledge, the VHV will be satisfied and will encourage others to use it.

## HIGH INTENTION (PRE APPLICATION VISIT)

This level lies between the subjective responses of VHVs and the objective features of Virtual Heritage Applications. This high intention will reach its zenith when it is based on a direct experience towards the application. This experience has to be remarkable and leave a great impact; an impact that creates motivation (Susyarini et.al., 2014). The VHVs' behaviours and attitudes will be influenced by their intentions (Chang, 2013). They will use all their accessible resources to know more about cultures and heritage of countries. It is noteworthy to mention that archaeology, heritage and history students would be very

motivated to use such online applications to inform their work and studies. In the meantime, these applications will protect this fragile heritage (Ciurea et al., 2014).

Therefore, there are six factors that can boost the high intention of the VHVs: Knowledge, Experience, Ability, Skills, Attitude and Behaviour. The VHV's knowledge about the application embeds all their theories, information, facts and figures. The VHV will always try to find out if the application is complete and useful. The direct experience with the applications helps the VHV to enrich their knowledge. The VHV Abilities are essential to enjoy the applications with all the senses. These abilities will help the VHV to see the events, to hear battles or music and feel the heritage at its best. Using these applications needs many skills. Time management and Communication skills are essential due to the long time the VHV has to stay around the applications. Proper Communication skills are necessary since the VHV can meet others online and chat with them (Biocca & Levy, 1995). Moreover, the enthusiasm for these applications will appear through the attitude and behaviour. If the VHV is impressed by the application, they will be the best one to promote it.

## INTERACTION (ON APPLICATION)

At this level, the VHVs will take the decision to buy the applications. Users will go through episodic missions and explore the enormous virtual space of the application. Sometimes they will play like actors and sometimes they will only watch the application world (Miller, 2012). While playing and exploring the virtual heritage applications, VHVs can meet different people online. They can chat, and even talk and make virtual friendships. Avakin Life application is a very good example of VR interactive applications. It helps the user to build their own world and make friends. Figure 2 shows the player in a touristic place, and on the right side, there is a panel to chat with other players.

There are three modes to interact with virtual heritage applications and the 3D world, and they can be represented as follows:

- Passive mode without influencing the environment. This includes moving around the places, objects and museums and consuming the presented contents of audio-visual and textual elements.

- Active mode with influencing the environment. This includes modifications of certain elements and the possibilities of choosing certain costumes to fit with the chosen heritage.

- Communication mode. This includes communications with other VHVs by text, voice chats, or face-to-face communications. It is very interesting that, online applications give the user the chance to meet people that they would have no way to meet in the real world (Kendall, 2002).

At this level, the VHV will build a solid idea about the application because they are already on the application and using it. At this point, the real evaluation of the virtual application will come into reality. The VHV will discover the advantages and disadvantages of the virtual heritage application. The application could be amazing and give accurate facts about the history and heritage. On the other hand, it could be inaccurate and not match with the reality.

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It could be an opportunity to know more about the heritage, or it could be at danger of causing confusion. VHVs can easily evaluate the application through a SWOT analysis (strength, weakness, opportunities and threats) (Thompson, 2001).



Figure 2. Avakin Life Application (Source: Avakin Game, 2017)

## LEARNING OUTCOMES (AFTER APPLICATION VISIT)

Sometimes it is difficult to get to know the heritage of a certain country. Many reasons are behind this. One of the reasons is traveling. It is difficult, sometimes, to travel to places because of the travel budget or due to political situations. Sometimes people dislike travelling to certain places because they feel they are not welcomed. This is one of the reasons why museum artefacts and objects travel for external exhibitions (Sheller & Urry, 2004). Virtual heritage applications give the opportunity for everyone to learn more about other cultures with no worries. VHVs will understand the different cultures by interacting with local artisans, teachers, musicians and storytellers. They can visit ancient temples, museums, even historical streets and market places (Champion, 2011). .

A question poses itself, why virtual heritage applications might matter to education? There are many reasons to make such applications useful in education. The most important of which are, constructionism and role-play (Hale & Stanney, 2002). Educators can make the VHV part of the application; they can be the Pharaoh or one of the farmers who built the pyramid. This makes education more interesting. Moreover, Virtual heritage is situated learning. There is no need to go to a certain place to login to the application. The problem here is that sometimes it is very hard to source these games and applications (Champion, 2015). Therefore, games builders should do more marketing for this type of games and applications.

Virtual heritage applications are the first step towards heritage preservation since it reduces the number of the visitors to the real places. Although tourism is a source of needed income, it might cause damage to historical sites due to intensive visits to the sites. Tourism is a consumer of environments and human communities (Orbaşli, 2000). The social heritage is very sensitive and it might be affected by the tourist's customs and traditions. Virtual applications will help to maintain the heritage and sites and preserve them in a good condition. One of the good examples here is the Louvre Museum Visitor Guide application, and it is inexpensive to explore each section: see Figure 3.
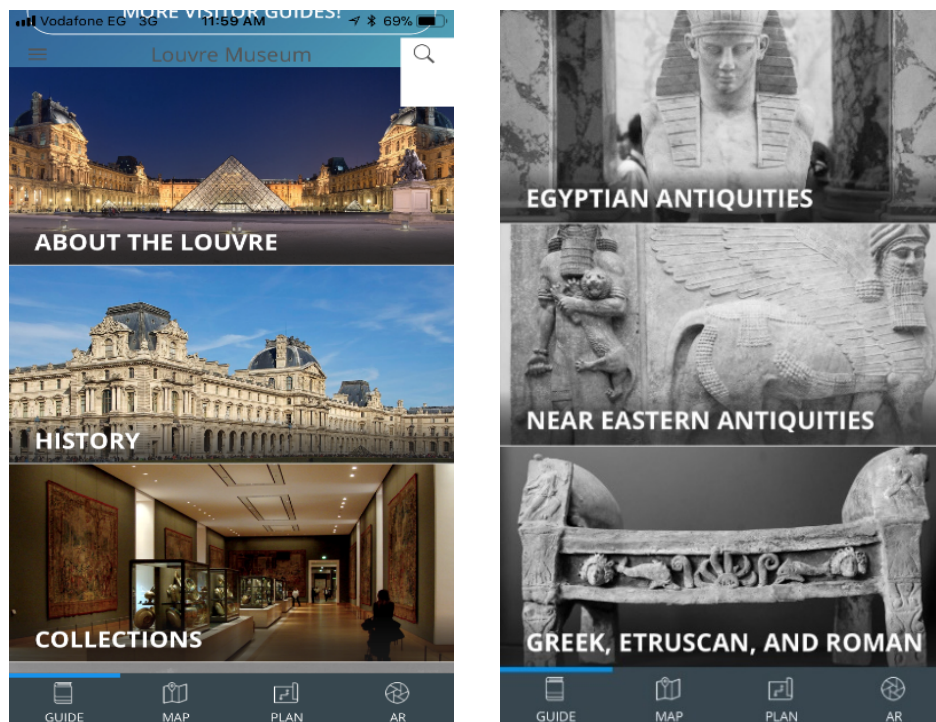
Figure 3. (Left) Louvre Museum Mobile Application; (Right) Louvre Museum Mobile Visitor Guide (Source: App Store, 2017).

## LOYALTY (AFTER APPLICATION VISIT)

Loyalty here means that the VHV does not seek out competitor applications nor show interest in others (Griffin, 2002). At this level, the VHV is willing to spend money, time, and effort to build on past successful experiences and overcome any weaknesses. It is noteworthy that, Loyalty is more than just a behaviour. Companies measure loyalty with the number of customers. However, it is wrong to assume that the VHV is loyal because he uses the application. We need to keep in consideration that it takes money or effort to buy another application. Maybe other applications are more expensive and the application in use is cheaper. The VHV might be in a process of finding an alternative. In addition, we need to keep in mind that habits, sometimes, are hard to break.

It is very hard to measure the VHV loyalty towards an application but it can be monitored. Measuring loyalty here means measuring the strong relationship between the VHV and the application, and studying the VHV attitude. Some of the predictable attitudes of the loyal VHV:

- recommending the application to others;
- using the application extensively;
- following to the Builder company online;
- providing the Builder with mistakes to correct them;
- not seeking for an alternative.

This means that a loyal VHV will show four main behaviours: repeats purchase, purchases across products, provides referrals and demonstrates resistance to competitors (Griffin,

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2002). At this level, VHVs can be categorized as Advocates, Switchers or Vulnerable. The Satisfaction/Loyalty Matrix clarifies the different levels of the customer loyalty (Abram & Hawkes, 2003); see Table 2. Since the VHV is a consumer, VHV's loyalty develops through seven stages: Suspect, Prospect, Disqualified Prospect, First time Customer, Repeated Customer, Client and Advocate (Griffin, 2002).

The suspect VHV is anyone who might possibly buy the application. They are a suspect because we are not sure if they will buy the application or not. The Prospect VHV is the one who has the need for the application and is able to buy it. Disqualified Prospect is the one who does not need the application nor the ability to buy it. The first-time VHV is the one who buys the application but they could be a customer of others as well. The repeated VHV is the one who is keen to use and to play on the same application and buys more levels. The Client is the one who is passionate about the application and buys all the company products. Finally, the Advocate is like a client but they can encourage others to use the virtual Heritage Application. In addition, here the VHV can do marketing for the application.

Table 2. Satisfaction/Loyalty Matrix (Source: Abram & Hawkes, 2003).

| | Low loyalty | High loyalty |
|---|---|---|
| Satisfaction | Switchers | Advocates |
| | High Risk | Vulnerable |

## EVOLVEMENT (AFTER APPLICATION VISIT)

People now travel to enrich their knowledge and to learn about different cultures and heritage. Virtual Tourism/Heritage is a great evolution for the tourism industry and it brings the past to life. This new technology helps the visitors to build a correct overview about the destination before visiting it. Maurizio Forte and Alberto Siliotti published the first major publication in 1997 discussing the benefits of computer graphics for visualizing the past (Forte & Siliotti, 1997). By 2001, hundreds of projects had started to use Virtual reality technology in Archaeology and History when the Institute for Visualization of History was established. According to Hendy Taha, the CEO of Select Egypt Travel, the number of the tourists has increased by 23% in 2016 after adding new experiences to the website.

As technology develops daily many companies, and even individuals, are trying to predict how virtual reality will continue to influence the virtual heritage industry in the future. This technology is one of the main factors encouraging the VHV to join applications. We have to keep in mind; that virtual heritage be contrived in a way that satisfies the VHV while keeping their desire to visit the real site blazing (Stepaniuk, 2016). This will lead us to an inevitable scenario for Virtual Heritage Applications; after being overwhelmed with the places, the VHV will be more passionate to visit the real location physically not virtually. In this sense, the number of tourists will increase in the real historical sites and places. On the other hand, this scenario could cause a big disappointment for the VHV if he visualizes facts, images and information better than the reality. Here the VHV will be unsatisfied and will lose trust in the application. His online bad views will destroy the reputation of not only the virtual heritage application but also the country itself. Therefore, Marketing for such applications has to be

clear that these applications will satisfy only the imaginative needs of the user. It cannot be ensured that the experience of visiting the real site will be as perfect as virtual reality heritage.

## SUSTAINABILITY (AFTER APPLICATION VISIT)

Sustainability in virtual heritage is the practice of maintaining the process of using virtual Heritage Applications. Here, sustainability should ensure the recurring of the previous seven levels is an ongoing process for the future generations. Sustainability, generally, is not only concerned with maintaining the process but also with improving it all the time. On the other hand, we also need to sustain the real heritage and history (Banse et. al., 2011). To sustain Virtual Heritage industry, it is important to understand the application's beneficiaries. The virtual heritage visitors (individuals or educational organizations) and the Applications builders are considered the direct beneficiaries. Two main concepts; the Concept of Needs and the Concept of Technology Limitations (Champion, 2011) affect sustainability of Virtual Heritage.

- The Concept of Needs: Sustainability of Virtual Heritage depends on the needs of the future generations who will use the applications. New Applications have to meet the developed essential needs of the coming generations. These needs are growing and developing every day. According to most of the online statistics, the number of users adopting the new virtual reality technology is expecting to reach 200 million by 2021 worldwide.
- The Concept of Technology Limitations: This challenge makes the virtual reality industry more interesting because there is no limit to the technological aspiration of humankind.

This means that sustainability of Virtual Heritage rests on three main pillars; technology, interest and economy. Big companies and the application builders have to invest in research to create the applications. At the same time, people must have the interest to learn about heritage and the economic leisure to buy such applications and keep buying them. Finally the main goals of virtual heritage sustainability are collecting more archaeological data; deep study of the past; a better way to visualize the past and reproduce the ancient environment; and tackling heritage from different prospective to satisfy the different educational and entertainment needs of the Virtual heritage Visitor. The heritage visitor will always travel between two worlds; the real world where he could be affected by its uncontrollable surroundings and the virtual one where he can control its environments (Cortés, 2017).

## CONCLUSION

The virtual heritage applications developers should be concerned with their online users and visitors not only before buying the applications but they should give more attention to the users' needs after the interaction phase. ACHILLES will help the marketers to create complete marketing plans through the understanding of the visitor's stages. It shows the steps of the visitor's engagement on the applications. This model illustrates a code reflecting the correlation between the virtual heritage visitor and the application developers. Finally, it represents a method for the developers to evolve and improve their applications to sustain the application.

## ACKNOWLEDGMENTS

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