

Article

# Virtual Immersive Platforms as a Strategic Innovative Destination Marketing Tool in the COVID-19 Era

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**Abstract:** The aim of this research was to address the issues in virtual-reality technologies and gamification within the context of immersive technologies. The author drew together, in a hybrid methodology, the principles of virtual touring and online training, as these need to be understood by destination and tourism professionals. The emphasis was on the utility of innovative multimedia and multimodal technological tools for modern content creation, which led to an online training process for travel agents, the role of gamification and how a virtual platform could be developed to promote a tourism destination during the COVID-19 pandemic. The author based the research on a case study of an immersive platform of a Greek destination and on the degree of the user response to the virtual technology and content. The study also included a comparison between two platforms: one using conventional content and one using multimedia content. The author methodologically used VAR models to describe the cogeneration process of multiple variables over time to investigate the relationships between these variables. The results led to a preference for immersive platforms, which can be a guide for corresponding platforms that are concerned with the promotion of destinations.

**Keywords:** virtual reality; immersive environment; gamification; tourism; destination; strategy



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## 1. Introduction

A number of virtual multimedia and multimodal immersive technologies are used in the international tourism environment to reach critical audiences by connecting destinations with tourism professionals. Dramatic events, such as the COVID-19 pandemic, act as accelerators of digital-application testing and the development of advanced technologies [1]. An entire industry (i.e., the organization of conferences, exhibitions, business trips, and incentive trips) was subjected to an unprecedented impact because destinations were deprived of useful tools for networking and contacting tourism professionals [2]. Virtual multimedia technologies have existed since the 2000s, but these technologies were dramatically developed during the COVID-19 pandemic [3]. In this environment, destination management and marketing organizations (DMMOs) adopted marketing strategies that utilize virtual-reality (VR) applications and virtual 360 touring, which aims to highlight key attractions and capture the interest of potential visitors and tourism professionals [4].

In this study, we examined a specific tourist destination and the way in which it utilized virtual-360-presentation tour tools in the promotion of tourism professionals through a multimedia/multimodal platform in the COVID-19 era. We studied digital virtual-reality and browsing platforms as strategic marketing and interconnection tools using new approaches, such as online training and loyalty creation, during the COVID-19 period [5]. Another crucial topic of this study was how the relevant tools were used in combination with gamification technologies, such as quizzes, polls, and contests. In this study, we holistically approached the strategic role that digital platforms play in value innovation while also presenting a model for the platform's operation. We drew conclusions regarding the users' and travel agents' behavior after using the specific platform based on a data evaluation. The scope of the bibliographic research went beyond the narrow

limits of this particular paper, and it sets the overall context for immersive platforms and their divisions. In this study, we also focused on the procedures for creating immersive platforms. Additionally, the author based the research framework on the theory of the strategic-management process as well as on the empirical procedure for the design and implementation of immersive platforms. This research establishes a theoretical basis for immersive technologies, and it presents a specific 360-presentation platform created by the author. Furthermore, data on the real traffic and hits constituted the quantitative part of the research, proving that the multimedia and multimodal content was much more attractive than the conventional content.

## 2. Theoretical Background

### 2.1. Virtual Browsing and Gamification for the Promotion and Networking of Modern Destinations

In the current study, the author presents VR technologies, which scholars have studied in the past from the perspectives of the user experience, experience marketing, and emotion creation [6–8], as an important marketing tool. Advanced virtual immersive technologies offer the user an experience before visiting a destination, especially if the limitations of COVID-19 are taken into consideration [9]. Virtual reality creates an artificial interactive environment in its optimal form that is perceived as real by the human user, which, in this case, is the visitor [10].

According to Lepouras, the characteristics of virtual reality can be summarized by the three Is: immersion, interaction, and information intensity, which are features that are equally important to the tourism process. The travel and tourism industry has made extensive use of virtual-tour technologies and virtual reality as commercial tools for travelers and tourism professionals [2,11]. Tourism offers a similar synthetic sensory experience to virtual environments by transmitting natural and abstract elements to the person experiencing it [12,13]. For this reason, several researchers, such as Tussyadiah, Wang, and Jia, have proposed immersive technologies as a substitute for the journey itself, which will bring about significant benefits [2–14]. In a study that took place long before the COVID-19 pandemic broke out, the researchers concluded that VR technology would not be able to replace real travel [15]. Particularly during the COVID-19 crisis, these features of virtual technology played a key role because the research community engaged in more research into VR in marketing and into the design of tourist destinations that would increase the number of visitors in the post-COVID-19 era [4,16]. Virtual tours that use the logic of “Try before you fly” applications are found in many modern hotel units [9].

According to Guttentag, virtual- and augmented-reality technologies find applications in tourism in areas such as design and management, marketing, education, accessibility, and cultural heritage preservation [17]. During the COVID-19 pandemic, many researchers studied the role of VR applications but mainly from the perspective of tourism companies [17–19].

For instance, the case of the leading Hilton hotel groups that have applied 360-touring technologies in their hotels is typical (the advertising campaign “Our Stage, Your Story” was based on 360-touring technology). The Marriott Hotel group has launched the “VRoom Service”, for which guests can borrow a virtual-reality device and experience “VR Postcards”. In the field of airlines, a corresponding Airbus touring application called “iflyA380” enables the user passenger to accurately observe the situation and environment on the plane. Before going bankrupt and reopening online, Thomas Cook created the empirical Thomas Cook Virtual Holiday applications. At the level of destinations, virtual-reality applications and 360 tours are transforming their functions and strategic positions, thereby decisively changing their differentiation. Examples include Dubai360 and applications at Yellowstone National Park, with an emphasis on sustainability. Researchers have suggested the use of these virtual immersive technologies in mass tourism, and for predicting the positions of visitors and their movements through visualization [20].

In addition to the virtual-reality and virtual-touring technologies that have been mentioned, researchers have exclusively focused on the dynamics of augmented reality with

reference to tourism [21,22]. Part of the international research on virtual- and augmented-reality technologies focuses on the exploitation of these applications in the tourism sector, the reporting of their characteristics, their technological understanding, and the resulting development perspectives [23–25]. In this case, the indicative applications related to the use of augmented reality for destinations are as follows: Blippar-AR City, Wikitude, the Lonely Planet AR app, and the eTIPS platform.

## 2.2. Gamification and Connection with Virtual Immersive Technologies

The same results of virtual-reality applications can be found in digital games. The term gamification in tourism was only introduced in 2008, and it became widely known in 2010 [26]. In the academic research on digital games in tourism, researchers mainly explore the models and design mechanisms of innovative applications in the field of service delivery and marketing [27]. An important part of the research combines the above technologies of augmented reality and digital games as pervasive augmented-reality games [28]. The role of “gaming” adds value to the tourist experience due to the visitors’ further participation, thereby creating conditions for commitment as an innovative tool [29]. Virtual-augmented-reality applications and digital games transform the functions and strategic positions of tourism companies by decisively changing their differentiation. Through virtual- and augmented-reality applications, as well as digital games, visitors’ perceptions and choices can be determined [30].

An important part of the literature also refers to the advantages for the educational process, which are revealed by the relevant gamification applications that researchers have analyzed so far, albeit from the tourism-professional perspective [31,32]. In the present research, the author emphasizes the specific types of gamification that destinations utilize to promote themselves, such as online training, quizzes, and competitions for users that are enriched with multimedia and multimodal content. Moreover, in this case, the typical examples of the use of gamification for networking and the promotion of destinations are the following: OTT Online Travel Training, Profi.Travel, NeTourWork, and the Travelport Academy.

## 2.3. Immersive Technologies for Tourist Destinations—A Strategic and Interdisciplinary Approach

The transition to smart hospitality and smarter tourism in general, as suggested by immersive technologies, can not only offer a competitive advantage to both visitors and hosts but also, more broadly, to the smart destinations that take advantage of both the pre- and post-COVID-19 periods [33–35]. The rapid development of information and communication technologies (ICT) and the rapid flow of data allow tourism businesses to substantially increase the quality of their services, while several authors report the conversion of visitor behavior to advanced applications [36,37]. There is substantial scientific work in which the researchers focus on new technologies and their application to tourism businesses, even in times of crisis [38–40]. Innovation and technology in the global environment require the strategic use of advanced technologies and their involvement in all aspects of the tourism sector, including the subsectors of the industry [39,41–43]. Nevertheless, the creation of these strategic marketing tools and the interconnection of destinations with the use of immersive technologies is a demanding and interdisciplinary approach because of the specificity of the tourism product. Immersive technologies include mixed reality (MR), which includes all possible variations between the virtual and real worlds, such as augmented reality (AR), augmented virtuality (AV), and virtual environments [44].

In terms of destinations as a technology, virtual 360 touring is particularly interesting because it brings the user to the real environment that will potentially be visited, with a simulation comprised of video, images, text descriptions, sound guides, or sound effects [45]. The information intensity, and especially when referring to tourist destinations, is not only related to the abundance of information but also to the variety of communication channels through which the information is offered to the user (visual, audio, tactile, etc.) [10]. Interactivity, which is important, responds to the natural forms of human communication [10]. For

this reason, virtual immersive technologies are a tool that modern marketing managers can use to enrich their content with multimedia content, while at the same time, they provide a realistic preview of the destination, thereby affecting the purchase intention [2]. We must analyze the total tourism product or experience that will be transferred using multimedia and multimodal tools to create immersive technological achievements from the perspective of destinations. For this purpose, a number of theories should be taken under consideration, and mainly from the scientific field of tourism, such as the Middleton research model (overall tourism product) or the analysis based on the Buhallis 6A framework, along with all the push and pull factors that constitute destinations [46–48].

The use of such complex technologies is quite demanding because it combines and challenges different characteristics of the users, such as play, exposition, choice, information, engagement, reflection, and specifically for the field of gamification [49]. In addition to the use of advanced multimedia and multimodal technologies, the use of verbal and visual content for tourists is of particular interest more demanding than any other category, given that the sociolinguistics of tourism constitute a very special type of communication [50]. The use of corresponding technologies should adopt interdisciplinary approaches, either in terms of the textual-linguistic aspects to be utilized, or in terms of the visual-pictorial aspects that shape tourism and the tourist experience [51]. In conclusion, the creation of corresponding immersive technologies for tourist destinations requires an interdisciplinary approach both for their implementation and operation, which is why it is considered a very demanding project.

### 3. Methodology

In this study, the focus is on high technology simulation, three-dimensional representation, digital games, and their transformation into an experiential inculcation, as well as on the users' acquaintance with the empirical tourist products. The author utilized a mixed-methodological approach with the aim of identifying the main factors that influence the creation of virtual platforms, and of enhancing the promotion and networking of destinations with tourism professionals. The author presents a broader conceptual approach to strategic destination promotion and networking tools, virtual touring, virtual reality, online training, and gamification and also includes a case study of a specific platform (created by the author of this article) that includes all the abovementioned technologies.

In the primary research, the author highlights the interdisciplinary character required for strategic tools that combine virtual tours, online training, and gamification with content management and the analytical knowledge of the destinations' tourism overall product. The author used the methodology to address both the technical and operational issues of the specific technologies. The analysis also deepens our understanding of the processing of data related to user behavior within the environments of these virtual platforms. The aim was to extract useful data and results on the strategic role played by virtual-reality and gamification technologies. A critical issue, which determined the methodology used, is the fact that this platform operated during the COVID-19 period, which added data to the analysis.

### 4. Case Study

#### *An Immersive Platform as a Strategic Destination Marketing Tool for the COVID-19 Era*

Here, the author presents a specific platform that utilized VR technologies for the promotion and networking of a Greek destination in the Western Greece Region. Modern researchers are drawn to relevant technologies and their roles in the tourist experience [52,53]. The specific platform (<https://westerngreececontest.netourwork.com/> accessed on 25 February 2021) involved the creation of a virtual platform promotion training program for foreign tour operators and a competition between tourism professionals abroad through gamification on the tourism elements of the Western Greece Region. The result is an information-rich domain that is beneficial for visualization, without limitations to the exploration of the destinations experienced by visitors during the COVID-19 era [54]. The author of this

research is scientifically responsible for the creation of this platform. The platform, which we utilized for the needs of the case study, provides foreign tourism professionals (travel agents, travel editors, local authorities) with a training opportunity, which leads them to a vote for the “best” selection in the end. The platform includes a virtual tour that focuses on the beaches of the Western Greece Region, which is something that was a trend during the COVID-19 pandemic [16,55].

Through the virtual projection—the voting platform—10 beaches of the Western Greece Region are presented through an enriched 360 multimedia tour (image and video), with content such as the accessibility, beach features, attractions in the wider region, and cultural features of the wider beach area. The platform allowed us to become acquainted with the travel agents in their own environments [56]. The 10 enriched virtual and multimedia presentations of the beaches of the Western Greece Region were the topics of the 10 options, which we then electronically sent to tourism professionals abroad in order to, first, train them to promote themselves by becoming acquainted with them, and second, allow them to vote for the best choice. Below is a record of the combination and interdisciplinary actions that we implemented for the creation of the platform, and specifically the creation of a platform that hosted multimedia–multimodal content (virtual tours, text, video, etc.) concerning the 10 beaches indicated to us by the Western Greece Region. In addition to the textual content, the platform utilizes 360 photography, 360 panorama videos, photography, and popups. Specifically, the author integrated all the individual 360 videos of the beaches, which resulted in an interactive platform in mixed reality that combines digital and physical information, encompassing an immersive environment, augmenting the real world, and offering interaction due to the gamification that corresponded to the participating travel agents [57].

Parts of the 360 videos (either those that were already produced for the other technological applications discussed above, or new ones) can be converted into regular videos, and especially for the projection of the Western Greece Region and all the beaches. Travel agents can employ 360 panorama views and can use their desktops or mobile phones, as per the technology that Sooi refers to [58].

This is a new style that makes even static 360 shots (e.g., 360 photos) gain movement and liveliness to capture the viewer.

The technical specifications of the visual VR tour for the 10 beaches are as follows:

- High resolution for use on the Internet and social media;
- Networking of 7680 × 3840 pixels (8K);
- Delivery of low-compression jpg files;
- Equirectangular coding in exploded view;
- Customized EXIF metadata files for automatic recognition by social media encoders, such as Facebook;
- Recognition of 360 photo files delivered by all search engines (Chrome, Firefox, Safari, etc.);
- Recognition of 360 photo files delivered by all VR360 players’ software (Kolor Eyes, GoProVR, SamsungVRplayer, etc.);
- Instant view from all head-mount-display systems (Oculus Rift, HTC Vive, Samsung GearVR, etc.) as well as from all mobiles that use cardboard systems.

In the same environment, there is the option to take 360 tours of all the beaches using drawn 360 videos, which enhances the synthetic sensory experience and reception channels of the human–computer-interface system [12].

Each virtual environment is enriched with enhanced information about the destination. Travel agents can view the destination in detail by experiencing an additional environment through an object manipulator [59], which essentially offers a collection of automated information about the destination of the Western Greece Region that is accessible in an interactive way [60].

For the needs of multimedia and multimodal promotion, the author created the information content (textual and visual) in order to enrich the 10 beaches with information

from the wider area of the Western Greece Region and the possibility of visualization (accessibility, beach features, attractions in the wider area, cultural features). For the sampling of the content, the author used two basic theories to identify and structure the tourist characteristics of the Western Greece Region, based on Middleton's theory for the main components that compose the total tourist product, with an emphasis on the 10 beaches of the Western Greece Region [48]. The research team took care of the efficient use of the online advertising content (e-branded content) and its distribution in actions related to building the image of the Western Greece Region as a unique tourist destination with authentic tourist characteristics, following the requirements of the online destination branding, thus providing added value to the content and differentiating simple event sequences from storytelling [61–63]. We used mixed-content methods with lexical and syntactic constructs, such as lexical (text or hyperlinks), visual (icons or highlighting), or acoustic (audio signals) constructs, to express the annotations [64].

The 10 virtual and multimedia presentations of the beaches of the Western Greece Region were the topic of the 10 options, which we subsequently electronically sent to tourism professionals abroad, first, to train to promote themselves by becoming acquainted with them, and afterwards, to allow them to vote for the best choice. The destinations were promoted, and the tourist professionals were trained for a significant part of the Western Greece Region through the voting process, which had gamification features created by professionals abroad.

The author created some tools in addition to the online training competition in the context of the implementation of gamification practices and the further development of the content and the training of travel agents in general and specifically:

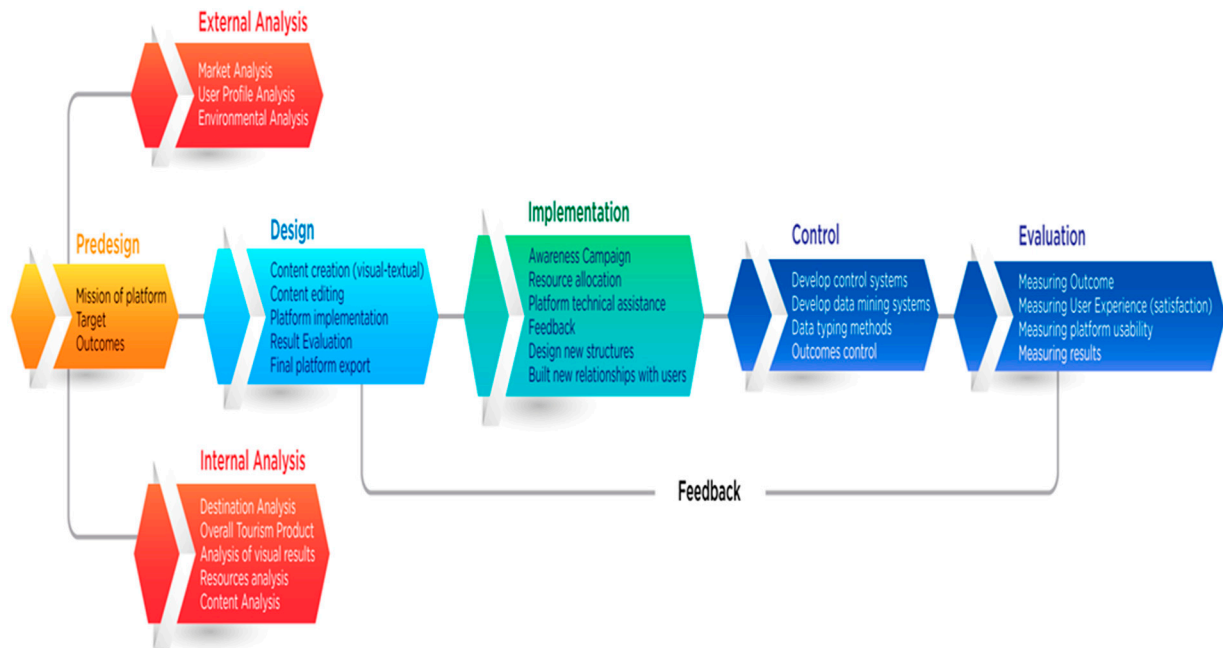
- Educational content that is transferrable on different platforms;
- A variety of presentations of educational content for the destination under study;
- An application of personalized content according to the user's options;
- A complete control system for the completion of individual courses for the destination of the Western Greece Region;
- The addition of interactive quizzes in parts of the courses—gamification;
- Interactive educational games (gamification) for the consolidation of the information.

The completion of the online training, which operated in addition to the virtual immersive platforms for the Western Greece Region, directs the user travel agents to a quiz. The successful ones are defined as "destination specialists", creating loyalty conditions and a step before the business agreement or partnership.

Holistically, the virtual immersive platform studied follows the most important dimensions contained in models regarding a destination-information system, such as ease of use, information quality, functionality, usability, responsiveness, appearance, design and presentation, and interaction, which have been described in various research works [65–69]. At the level of the promotion of the platform, a targeted newsletter campaign took place, which was addressed exclusively to travel agents abroad, taking into account the General Data Protection Regulation (GDPR). The campaign took place in the middle of a quarantine (February–March 2020), when, due to the quarantine measures, there was a need to internationally inform and train travel agents through a VR platform because travel at the time was impossible.

Evaluation and control constitute a dynamic process for immersive platforms, and it occurs in all phases of the design and implementation. As a process, however, the evaluation of the results took place, in terms of the users and their behavior, within the platform and their wider interaction. For this purpose, we utilized open data and tools using cookies, such as Google Analytics, Webalizer, and AWstats, all of which are web-log-analysis software that generate web pages of analyses from access and usage logs. The open data, which were subject to measurement and evaluation on a monthly basis, included data categories such as the total hits, total files, total pages, total visits, total Kbytes, total unique sites, total unique URLs, total unique referrers, total unique user agents, and hits by response code, as well as an analysis by country of origin of the users.

Overall, the whole process of creating and implementing an immersive platform is a demanding process, which, because of its multifactorial nature, requires a strategic approach to the procedures followed. For this purpose, the author created a framework that is based on the theory of strategy, with a specifically focus not only on the strategic-management process but also on the flowchart for the design and implementation of immersive VR-SGs for learning tasks [70,71]. Below is the flowchart of the procedure for the immersive platform under creation (Figure 1).



**Figure 1.** Immersive platform creation procedure.

## 5. Research

### *Analysis and Hypothesis Testing*

We identified the impact caused by the virtual content on the users' behavior (travel agents, tour operators, destination specialists, and tourists) and present it in this section. The research emphasizes the utility of innovative multimedia and multimodal technological tools for modern content creation, leading to the online training process of travel agents. In the analysis, based on the data gathered from the two platforms in March 2021, we tried to identify whether the visitors to the first platform (Westerngreececontest—with immersive technologies) were encouraged to visit and use the second platform (Netourwork—without immersive technologies). For this purpose, the number of visits per day (visits) was used, as well as the hits per day, for the entire duration of the month. We could thereby assess whether the traffic or hits on the first platform had some effect on the corresponding metrics of the second one.

We considered the following cases:

Ho: There is no causal relationship between the first and second platforms in terms of the number of visits;

Ho: There is no causal relationship between the first and second platforms in terms of the number of hits.

We used the Granger causality approach to examine the structure of the causal links between the variables. The Granger causality test is a statistical hypothesis test that researchers use to evaluate whether one timeseries can be used to predict another. If the probability value is less than a certain level, let us say  $\alpha$ , then the hypothesis is rejected at that level. VAR models describe the cogeneration process of multiple variables over time, and we can therefore use them to investigate the relationships between variables. Granger causality is a type of relationship between timeseries (Granger, 1969). The basic idea of

Granger causality (GC) is that, if the forecast for one timeseries is improved by including the knowledge of a second timeseries, then the latter should have a causal relationship with the first. Specifically, two autoregressive models are fit to the first timeseries (including the second timeseries or not), and the improvement in the prediction is measured by the ratio of the variance of the error term. The null hypothesis for GC is that taking the  $y$  and  $x$  lag values together as predictors adds no explanatory power. If the coefficient of the lag value of  $x$  is significant, then the null hypothesis that  $x$  does not cause  $y$  is rejected. That is, Granger suggested that variable  $x$  is causal to variable  $y$  if the lag value of  $x$  helps to improve the prediction of  $y$  ( $y$  in future time). The VAR framework is flexible, and it provides an environment for implementing this kind of analysis [72].

In econometrics, causality is not the same as it is in common life; it refers to the ability of one variable to predict (and so cause) another. Suppose two variables,  $Y_t$  and  $X_t$ , affect each other with distributed lags. The relationship between the variables can be captured using a VAR (vector autoregression) model. In this case, it is possible to have the following: (a)  $Y_t$  causes  $X_t$ ; (b)  $X_t$  causes  $Y_t$ ; (c) bidirectional feedback (causality between the variables); (d) the two variables are independent. The issue lies in determining an adequate strategy for testing and statistically detecting the cause-and-effect relationship between the variables. Granger devised a straightforward test for determining causality: if  $X_t$  can be predicted with greater accuracy by utilizing the previous values of the  $Y_t$  variable than without using the past values, then the variable  $Y_t$  is said to cause  $X_t$ , with all the other terms remaining unaffected (unchanged) [72].

The Granger causality test for the case of two stationary variables ( $Y_t$  and  $X_t$ ) involves, as a first step, the estimation of the following VAR model:

$$y_t = a_1 + \sum_{i=1}^n b_i \cdot x_{t-i} + \sum_{j=1}^m \gamma_j \cdot y_{t-j} + e_{1t} \quad (1)$$

$$x_t = a_2 + \sum_{i=1}^n \theta_i \cdot x_{t-i} + \sum_{j=1}^m \delta_j \cdot y_{t-j} + e_{2t} \quad (2)$$

where it is assumed that both  $e_{1t}$  and  $e_{2t}$  are uncorrelated white-noise error terms. In this model, we can have the following different cases [73]:

- Case 1. In Model (1), the lagged  $x$  terms could be statistically significant or, in other words, different from zero as a cluster of variables, and the lagged  $y$  in Model (2) is not statistically significant. We can say that  $X_t$  causes  $Y_t$ ;
- Case 2. Based on Model (2), if the lagged  $y$  terms are statistically significant as a cluster of variables, and the lagged  $x$  terms in Model (1) are not statistically significant, then we know that  $Y_t$  causes  $X_t$ ;
- Case 3. In Models (1) and (2), if both sets of variables ( $x$  and  $y$ ) are not statistically significant, then we have bidirectional causality;
- Case 4. In Models (1) and (2), if both sets of variables ( $x$  and  $y$ ) are not statistically significant, then  $X_t$  is not dependent on  $Y_t$ .

The procedure for the Granger causality test is as follows. We start by using Equations (1) and (2) to estimate the coefficients of the VAR model. After that, we assess whether the coefficients of the lagged  $x$  variables of Equation (1) are statistically significant, and we perform the same for the lagged  $y$  variables of Equation (2). Then, based on the four scenarios discussed above, we can draw conclusions regarding the direction of the causation based on the results of the variable-deletion tests.

Before we proceed to test these two hypotheses, we present a table (Table 1) below with the averages of the basic measurements for the two platforms. Moreover, a couple of useful charts help us to descriptively understand whether there is a causal relationship between the two metrics (visits and hits) mentioned above, and therefore, whether the visitors of the first platform were indeed led from its content to the second. The source of



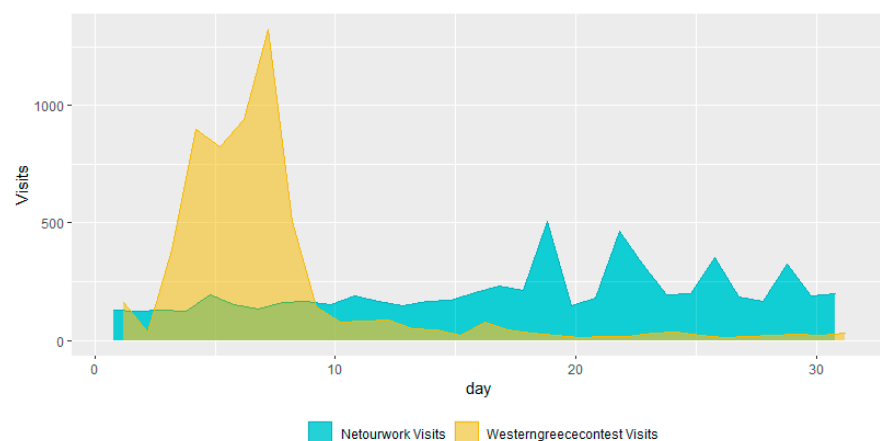
the data is the open data offered by the two platforms. The author of the article, who is also the creator of the two platforms, had the opportunity to access the data and use them for comparing the visits and hits between the two sites.

**Table 1.** Averages on basic metrics.

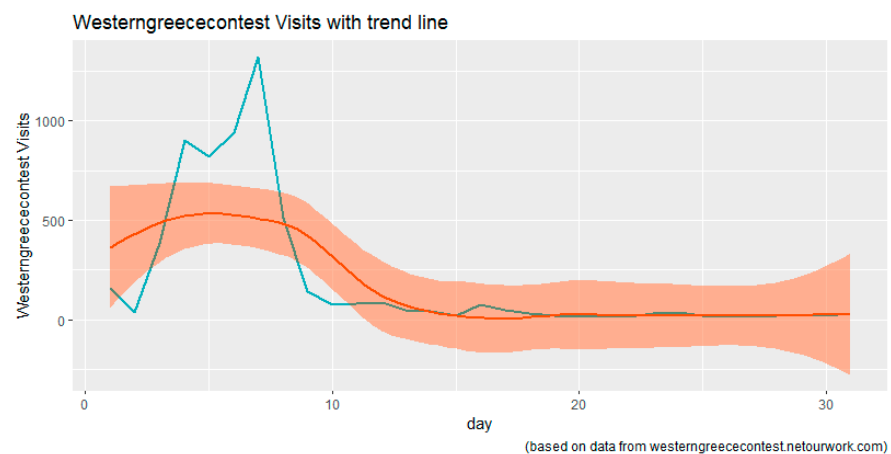
	Westerngreececontest	Netourwork
	Avg	Avg
Hits per hour	727	171
Hits per day	17,467	4114
Files per day	17,182	3912
Pages per day	410	665
Sites per day	168	115
Visits per day	194	205
KBytes per day	2,248,839	197,277

From the descriptions in Table 1, we understand from the volumes of hits, files, and KBytes (both per day and per hour) that the traffic on the first platform lasted much longer than that on the second.

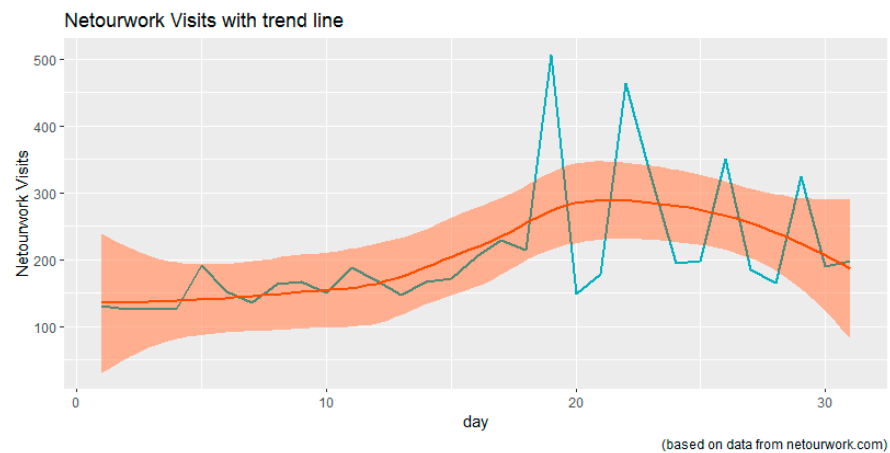
From Figures 2–7, we can easily observe that the member volume of visits to the second platform followed that of the second, which is the first indication of the existence of a causal relationship.



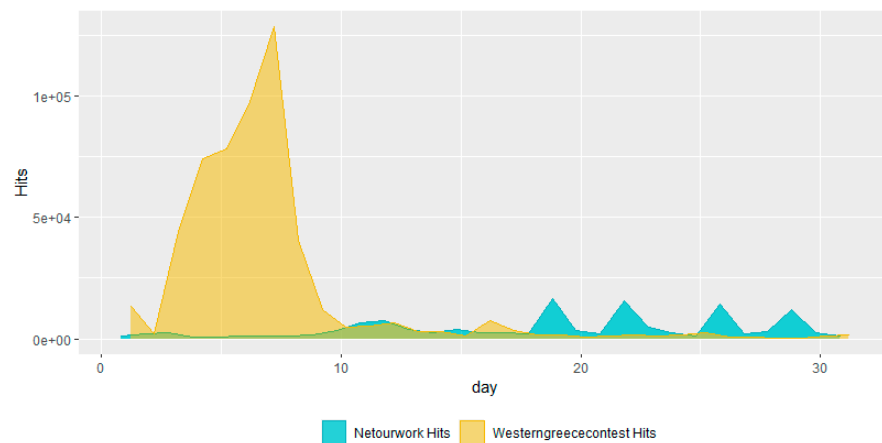
**Figure 2.** Comparing visits between two sites (URL: <https://westerngreececontest.netourwork.com/> accessed on 25 February 2021).



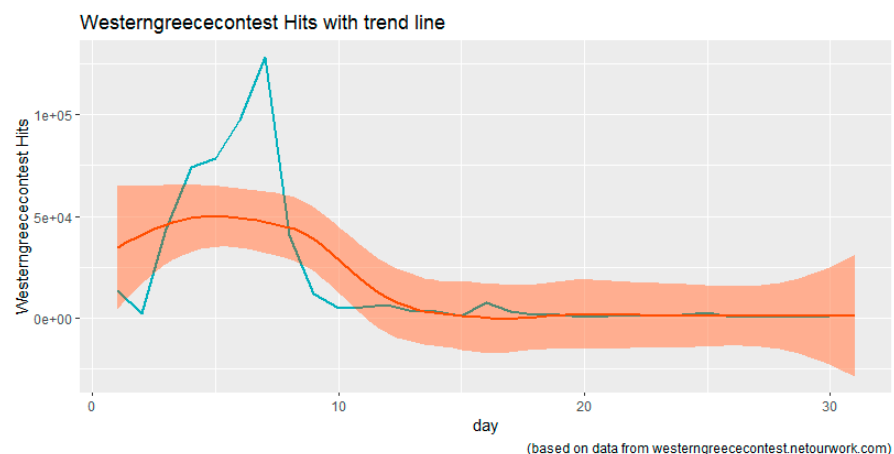
**Figure 3.** Visits with trend line: the Western Greece contest (URL: <https://westerngreececontest.netourwork.com/> accessed on 25 February 2021).



**Figure 4.** Visits with trend line: the Netourwork Greece contest (URL: <https://westerngreececontest.netourwork.com/> accessed on 25 February 2021).



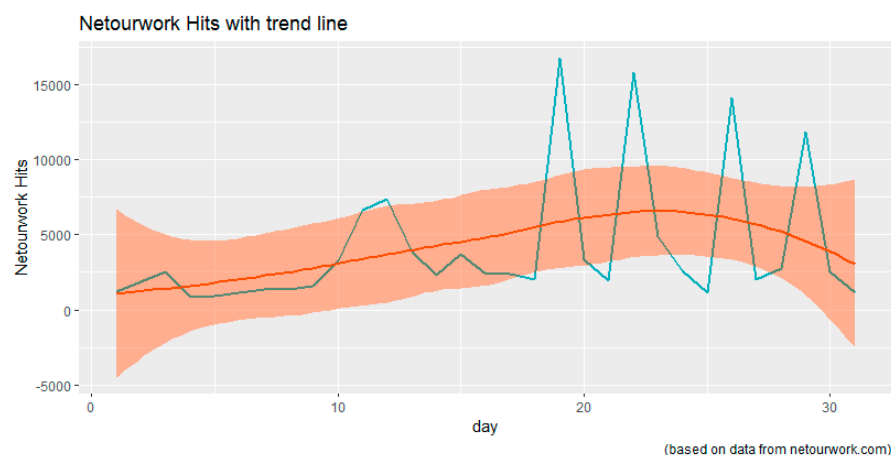
**Figure 5.** Comparison of hits between two sites (URL: <https://westerngreececontest.netourwork.com/> accessed on 25 February 2021).



**Figure 6.** Hits with trend line: the Western Greece contest (URL: <https://westerngreececontest.netourwork.com/> accessed on 25 February 2021).

In immersive platform, which concern the hits, we can observe the same as before. Over time, the large volume of hits on the first platform precedes and possibly implies the corresponding volume of hits on the second platform. However, the descriptive data alone are not enough to prove whether the visitors of the first platform were led to the second.

For this reason, the two research attacks that the author formulated at the beginning of this section were used to employ the statistical control of the Granger causality.



**Figure 7.** Hits with trend line: the Netourwork Greece contest (URL: <https://westerngreececontest.netourwork.com/> accessed on 25 February 2021).

Based on the results of the test (Table 2, Test A), the author rejected the first hypothesis at a significance level of 5% because the Granger causality test was below a  $p$ -value = 0.02961, which is less than the significance level (0.05). Therefore, there was a causal relationship between the first and second platforms in terms of the number of hits, with two days' difference from one to the other.

**Table 2.** Granger causality tests.

	Number of Time Lags	DF	F-Statistic	$p$ -Value
Test A	2	24, 26	4.0903	0.0296 *
Test B	2	24, 26	0.7241	0.4951
Test C	2	24, 26	2.2636	0.0305 *
Test D	2	24, 26	0.4993	0.6131

Significance codes: 0.01 '\*\*'.

However, we cannot accept the same result if there is a causal relationship between the second and first platforms in terms of the number of hits. Here (Table 2, Test B), the  $p$ -value = 0.4951, which is greater than the significance level (0.05) that we initially obtained. In terms of the second case (Table 2, Test C), it was rejected at a level of significance of 5%. This finding comes from the results of the causality test below, from which we obtained a  $p$ -value = 0.0305, which is less than the level of significance (0.05). Therefore, we can claim that there is a causal relationship between the first and second platforms in terms of the number of visits, with two days' difference from one to the other. Finally, this was not a two-way relationship (Table 2, Test D) because, according to the results of the test below, we obtained a  $p$ -value = 0.6131, which is a value that is greater than the level of significance.

## 6. Findings

According to the results, the first platform (Westerngreececontest—with immersive technologies) encouraged the users (travel agents, tour operators, destination specialists, tourists) to visit and use the second platform (Netourwork—without immersive technologies), but the opposite was not true. The users preferred to browse the platform with the virtual immersive content because the second did not have multimedia and multimodal content. The large volume of hits on the first “virtual” platform preceded and possibly implied the corresponding volume of hits on the second platform. Both the bibliographic part and research part answered the basic questions related to the importance of virtual immersive platforms as a strategic innovative destination marketing tool. In the literature review, we covered an important part of the theory regarding virtual immersive platforms.

The author will utilize bibliographic research based on bibliometric and visualization analyses in future, following important research initiatives [74–76]. The case study offers the required information about the needs in creating similar tools. The research part answered the basic hypothesis that there was causal relationship between the first and second platforms in terms of the number of visits and hits but only from the immersive platform to the nonimmersive platform.

## 7. Conclusions

In this research, we sought to highlight the role of simulation and 3D-representation technologies as well as digital games and their transformation into an experiential inculcation as well as the familiarization with the tourist empirical products offered by destinations through a real case study of which the author himself was the scientific director. The author based the research on a case study of an immersive platform of a Greek destination and on the degree of the user's response to the virtual technology and content. The research also includes a comparison between two platforms: one with conventional content and one with multimedia content. According to the results, the use of relevant advanced content and the virtual depiction of the destination under presentation created value for the destination itself while raising the particular interest of the participant users. The virtual presentation of the destination itself, and also of the sum of all the complementary overall tourism products and services, which the user perceives as a whole market or as a single and homogeneous product, creates a critical influence factor, as it especially did during the pandemic period. However, the role of gamification was also important as a process that emerged from the voting process and the interest shown by the tourism users. In the future, researchers could further explore the impact of these technologies not only on the user effectiveness but also on how these technologies can lead to business decisions or individual visitor selections of specific destinations by utilizing relevant technologies.

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