Advancing Romanian Ecotourism

By:
Cooper, Terrance
Saddler, Teresa
Nascimento, Mattheus

Project Advisors:
Professor Bland Addison (Primary)
Professor Rodica Neamtu

Sponsor:
Colinele Transilvaniei Ecotourism Board

The Transylvanian Highlands Ecotourism Initiative was suffering from lack of an efficient online communication and advertising platform. This project focused on creating a website to fulfill the destination's needs. The website will serve as a tool for the destination to service both tourists and stakeholders as well as a platform for the initiative to expand. Accompanying the website is a manual and a tutorial for the future website administrators to use in order to learn how to manage and edit the website.

An Interdisciplinary Qualifying Project submitted to the faculty of Worcester Polytechnic Institute in partial fulfillment of the requirements of the Degree of Bachelor of Science.

Table of Contents

Table of Figures

Contributions

Section	Primary Author	Primary Editor
Executive Summary	Terrance Cooper	Teresa Saddler
Chapter 1: Introduction	Terrance Cooper Mattheus Nascimento	Teresa Saddler
Chapter 2: Background Information	Terrance Cooper	Teresa Saddler
2.1 An Environmental Initiative	Terrance Cooper	Teresa Saddler
2.1.1 Defining Ecotourism	Mattheus Nascimento	Teresa Saddler
2.1.2 Ecotourism's Varied Results	Teresa Saddler Mattheus Nascimento	Mattheus Nascimento
2.2 The Romanian Context	Terrance Cooper	Teresa Saddler
2.2.1 Romania and the Transylvanian Highlands	Mattheus Nascimento Teresa Saddler	Terrance Cooper
2.2.2 Overview of Romanian Ecotourism	Terrance Cooper Mattheus Nascimento	Teresa Saddler
2.2.3 Overview of the Transylvanian Highlands Ecotourism Initiative	Teresa Saddler Terrance Cooper	Mattheus Nascimento
2.2.4 Agencies Involved with Transylvanian Highlands Ecotourism	Teresa Saddler Terrance Cooper	Mattheus Nascimento Teresa Saddler
2.2.5 The Challenges of Transylvanian Ecotourism	Terrance Cooper Teresa Saddler	Teresa Saddler
2.3 Project Origin	Teresa Saddler	Terrance Cooper
2.3.1 Communication: The Debate	Teresa Saddler	Terrance Cooper
2.4 Technical Research	Terrance Cooper	Teresa Saddler
2.4.1 Communication Platforms	Terrance Cooper	Teresa Saddler
2.4.2 A Website Builder	Terrance Cooper	Teresa Saddler
2.4.3 A Database	Mattheus Nascimento	Teresa Saddler
2.4.4 Wayfinding	Teresa Saddler	Terrance Cooper
2.4.5 Best Practices and Evaluation	Teresa Saddler Terrance Cooper	Teresa Saddler
2.5 Literary Findings	Mattheus Nascimento	Teresa Saddler
Chapter 3: Methodology	Terrance Cooper Mattheus Nascimento	Teresa Saddler

3.1 Acquisition of Information	Teresa Saddler	Mattheus Nascimento
3.1.1 Stakeholders in the Transylvanian Highlands Ecotourism Initiative and their Respective Roles	Teresa Saddler	Mattheus Nascimento
3.1.2 Ascertainment of Attitudes Towards Current Methods of Communication	Teresa Saddler	Terrance Cooper
3.2 Analysis and Application of Data	Teresa Saddler	Mattheus Nascimento
3.2.1 Analysis of Data from Interviews and Surveys	Teresa Saddler	Mattheus Nascimento
3.2.2 Development of a List of Requirements	Teresa Saddler	Terrance Cooper
3.3 Implementation of Chosen Design	Terrance Cooper	Teresa Saddler
3.4.1 Construction of the Site Outline	Terrance Cooper	Teresa Saddler
3.5 Testing and Adaptation	Terrance Cooper	Teresa Saddler
3.5.1 Testing the Website	Terrance Cooper	Teresa Saddler
3.6 The Deliverable	Terrance Cooper	Teresa Saddler
Chapter 4: Results and Findings	Teresa Saddler	Teresa Saddler
4.1 Promoting Ecotourism	Terrance Cooper	Teresa Saddler
4.1.1 Drawing the Eye	Terrance Cooper Teresa Saddler	Teresa Saddler
4.1.2 Information Organization	Terrance Cooper Teresa Saddler	Teresa Saddler
4.2 Increasing Stakeholder Communication and Involvement	Terrance Cooper	Teresa Saddler
4.2.1 Interviews	Terrance Cooper Teresa Saddler	Teresa Saddler
4.2.2 Membership	Terrance Cooper	Teresa Saddler
4.2.3 Editing Permission Scheme	Terrance Cooper Teresa Saddler	Teresa Saddler
4.2.4 Member Added Events	Terrance Cooper Teresa Saddler	Teresa Saddler
4.3 Increasing Website Efficiency	Terrance Cooper	Teresa Saddler
4.3.1 Notification System	Terrance Cooper	Teresa Saddler
4.3.2 Dynamic Pages	Terrance Cooper Teresa Saddler	Teresa Saddler
4.3.3 Multilingual Options	Terrance Cooper Teresa Saddler	Teresa Saddler

4.4 The Destinations Initial Plans for the Website	Terrance Cooper	Teresa Saddler
4.4.1 SEO	Terrance Cooper Teresa Saddler	Teresa Saddler
4.4.2 Analytics	Teresa Saddler	Teresa Saddler
5 Conclusions and Recommendations	Teresa Saddler	Teresa Saddler
5.1 Potential Next Projects	Terrance Cooper Teresa Saddler	Teresa Saddler
5.1.1 Booking	Terrance Cooper Teresa Saddler	Teresa Saddler
5.1.2 Adding More Interactive Features	Terrance Cooper Teresa Saddler	Teresa Saddler
5.1.3 Location API	Terrance Cooper Teresa Saddler	Teresa Saddler
5.1.4 Editor X	Terrance Cooper Teresa Saddler	Teresa Saddler
5.2 Communication Platform and the Future of Eco-Tourism in Romania	Terrance Cooper Teresa Saddler	Teresa Saddler

Executive Summary

Through collaboration with the Transylvanian Highlands tourism board, this project created an online communication tool to address the needs of the Transylvanian Highlands Ecotourism Network. In order to accomplish this our project group compiled a set of objectives to consider when developing deliverables. Primarily, we recognized the need to increase the efficiency of stakeholders' communication networks. Throughout this project, we strove to contribute to the promotion of ecotourism, both in the Transylvanian Highlands and globally. We also had to ensure that the platform we developed allowed for the ecotourism initiative to continue to expand in terms of its networks and the services it offers. Finally, we aimed to build and strengthen the trust and relationships between the stakeholders of the region both through the platform and through the process we took to develop it.

To understand the context of the project and identify potential solutions to the problems faced by the Transylvanian Highlands ecotourism initiative, an examination of relevant literature was conducted. Through this research, we identified several options of website builders to use. Of these website builders, Wix was selected as an ideal platform for the application. We investigated the working climate in post-communism Romania to give context to our project. Additionally, the best practices of web design were identified, and the principles and objectives of ecotourism were defined. Usability is of the utmost importance in creating a website or online tool. From our literature review two effective tools to ensure easy and efficient use of a website. The first was Nielsen's Heuristics which are ten principles that contribute to the usability of a website. The other method is wayfinding which is a design theory commonly used in websites to determine navigability. It is predicated on designing a website so that it operates how an average person would expect it to. Based on our findings from this research, we were able to best shape the implementation of our project.

In order to generate a platform that served the needs of all members of the stakeholder network, we decided to acquire input from a broad spectrum of people involved in the ecotourism network through a series of semi-structured interviews and surveys. Based on the responses from these interviews and surveys, as well as our understanding of website design best practices, we were able to generate a prioritized feature list to follow when developing the website.

Upon completion of the initial implementation of the website, it was important to put the platform through a formal testing process. We accomplished this through an exercise questionnaire that was distributed as a Google Form. The questions were all chosen to assess the parameters outlined in Nielsen's Heuristics as being indicative as a usable website. The responses of this survey provided us with the information necessary to identify the areas of the website that did not function as intended or as necessary and fix issues accordingly.

In the end, Transylvanian Highlands Ecotourism destination management team was presented with a functional, aesthetically pleasing, and easy to use website. This website will function as a tool to help bring the region's stakeholders closer together, and efficiently advertise its diverse services to tourists. By design, the destination management team (our collaborators in Romania) will be able to easily continue to develop this tool as necessary when future needs and desires arise. We provided an 80-minute tutorial on how the basics of the website function with a supporting video to explain its use. In addition, documentation describing how to maintain and improve the website after the completion of this project was provided to supplement the website and tutorial. All of these items can be found at

https://tsaddler.wixsite.com/ecotourisminfohubd20 and
https://mihai654.wixsite.com/transylvania. In the future, the website will be located at
https://transylvanian-highlands.com/.

Chapter 1: Introduction

Tourism makes up a large sector of the economy, contributing to a remarkable 8.2% of worldwide employment and 9.4% of world GDP in 2009 (Luna-Nevarez & Hyman, 2012). For many developing countries with rich natural landscapes, a version of tourism known as ecotourism has seen a significant rise in popularity. One such country is Romania, a country in southeastern Europe boasting attractions such as the beautiful Transylvanian Highlands (Colinele Transilvaniei in Romanian), which stands to benefit from the implementation of ecotourism principles. The core values of ecotourism are responsible travel within natural and cultural areas, supporting the local people, educating the tourists, and protecting the environment (Ştefan, Gheorghe & Cutaş, 2014). Through ecotourism, Romania can provide tourists with an educational experience, greater appreciation for nature and cultural heritage, and directly benefit the economies of the local communities. Developing a functional ecotourism model requires collaboration from different people and organizations. The after-effects of communism still breed mistrust among the people of the region, and as such, collaboration is not always easy or efficient. For ecotourism to succeed, there must be effective communication among the stakeholders. To enable this communication, the context of Romania and the Transylvanian Highlands must first be examined.

Romania, like many Eastern European countries, has an opportunity to gain international recognition in ecotourism through its rich natural resources and cultural and historical heritage. The country has countless attractions - ranging from sprawling mountain ranges full of wildlife, to beautiful green hills dotted with villages full of authentic medieval architecture - which all contribute to foreseeable success with Romanian ecotourism. Since ecotourism as a concept involves a complex network of businesses and organizations, coordination between stakeholders is both critical and difficult. Creating appropriate channels of communication in order to effectively organize such a complex enterprise is therefore a challenging endeavor without the proper management.

The Transylvanian Highlands hosts an ecotourism initiative that works to promote and conserve the beauty of the region. This initiative was the result of the cooperation of many private organizations that work towards ecotourism development or conservation of heritage, architecture, and nature in the region. These organizations were working separately, sometimes in competition with each other, until 2015, when the initiative was started and they agreed to collaborate The destination management team act as the link between all stakeholders involved in ecotourism in the Transylvanian Highlands, including governmental bodies, non-governmental organizations and local businesses, with the goal of unifying efforts towards promoting ecotourism in the region.

The cooperation of this larger group faces many challenges--most notably communication issues. The destination management team has experienced difficulty tracking the activities of various different partner organizations. The network, which relies on informal relationships, lacked a formal location to display diverse information about the region that functioned efficiently and allowed for stakeholder input. Our solution to this problem was creating a website which fulfills the needs for tracking activities and advertising events as well as efficient information dissemination. The previous destination website for the Transylvanian Highlands lacked proper editing permissions for all partner organizations to enable a joint

development effort. The partners were unable to post events publicly to generate interest and increase visitor numbers. Thus, this IQP aimed to help the destination develop a website that met all of the listed requirements, while allowing for future improvements as deemed necessary.

This project focused on developing a brand new website to serve as the information hub that the Transylvanian Highlands ecotourism initiative needed in order to simplify the communication between its stakeholders. The website was created using a website builder that provided different development options, depending on prices and features. Concurrently, interviews with members of the Transylvanian Highlands destination management team, members of the tourism board, as well as surveys for small businesses located in the region were conducted in order to obtain necessary data for implementing, testing and improving the website.

Through collaboration with members of the ecotourism initiative in the Transylvanian Highlands and communication with various representatives of the different stakeholders of the initiative, this project provided the Transylvanian Highlands with a web-based platform to enable efficient communication between all parties involved in ecotourism in the region. This project team created an information hub for the advancement of ecotourism which the team hopes will serve as a guiding example for others who wish to effectively develop and advance ecotourism initiatives and industries in different settings.

Chapter 2: Background Information

Communication is often more complicated than the simple exchange of information between two parties. It is a complex social concept that requires significant cooperation from all parties involved. When placed on the scale of an entire industry (which in this paper refers to the ecotourism sector of the economy), more variables are added to the equation. Efficient sharing of information in such a situation often requires the use of an online tool to support diverse and complex communication channels. The Transylvanian Highlands ecotourism initiative's need for a better information hub is not unique in the world, and it is not even unique among similar ventures. Thus, any solution to the proposed problem must first be analyzed in the context of some key questions. Mainly, what makes ecotourism different from other forms of tourism, what is the Transylvanian Highlands in the context of ecotourism and Romania, how does this context affect a potential solution to the communication problem, what technical research exists already to deal with similar problems and what tools are available to simplify the work of the initiative? Properly answering these questions requires gathering information from both scholarly sources and our collaborators, the Transylvanian Highlands destination management team, in order to develop best practices with which to proceed.

2.1 An Environmental Initiative

Ecotourism is defined as "a form of tourism where the tourist's main motivation consists in observing and appreciating nature and local traditions related to nature" (Ștefan, Gheorghe & Cutaș, 2014, p. 297). According to Ștefan, Gheorghe & Cutaș (2014), the practices of ecotourism must in some way be related to:

- Conserving and protecting nature,
- Using local human resources,
- Educating tourists about the local environment, and
- Minimizing the negative impact to the local natural and cultural setting.

Ecotourism differs from traditional tourism due to its focus on preserving and sharing its host destination's setting, culture and heritage, and its emphasis on promoting and enabling the destination's residents. The duality between the objectives of environmental protection and advertising tourism creates more intricate needs to be fulfilled in order for ecotourism to thrive (Ștefan, Gheorghe & Cutaș, 2014). One of the more important requirements for success is efficient and frequent communication among the stakeholders involved.

2.1.1 Defining Ecotourism

The tourism industry has a long history in nearly every country throughout the world. However, mass tourism tends to cause harm to the locations it is promoting, affecting the culture, environment, and heritage. The negative impact of mass tourism and traditional tourism drives the need for an alternative form of tourism which by design has little to no negative impact, such as ecotourism. Ecotourism is often incorrectly defined as "sustainable tourism," "responsible tourism", "nature-based travel" or "green travel." In fact, ecotourism is a combination of all these as one (Buckley, 1994). Different from traditional tourism, a successful ecotourism destination must avoid corrupting the local heritage through the presence of the tourists or

services. One approach to this problem is incorporating local culture and people into the industry (Buckley, 1994). It is this idea that ecotourism prides itself on.

To fulfill its purpose, there are certain principles ecotourism must follow. The principles of ecotourism are to conserve and protect nature, use local human resources, educate tourists about the local environment, and minimize the negative impact to the local natural and cultural setting (Ștefan, Gheorghe & Cutaș, 2014). Conserving and protecting nature is necessary in guaranteeing the environmental sustainability of ecotourism, as ecotourism cannot continue if the natural environment is destroyed. Using local human resources is desirable as it cuts transportation costs for workers while supporting the community. Educating tourists assists in protecting nature and minimizing their negative impact, as visitor participation is critical in conserving the environment and culture of the region. The avoidance of negative impact is similar to the protection of nature in that it relates to ecotourism's self-sustainability. If the local natural and cultural settings are not maintained, then the self-sustainability of ecotourism will have failed. The most important aspect of ecotourism is that it does not impart negative side effects on the destination. Succeeding in this ensures the preservation of nature and therefore the preservation of ecotourism itself.

2.1.2 Ecotourism's Varied Results

Ecotourism and similar tourism models, such as community-based tourism, have been implemented across the globe with varied success. In order to have a successful ecotourism enterprise, the stakeholders must overcome the communication and cooperation hurdles involved in the collaboration of many parties. While ecotourism as a model has a great potential to benefit all parties involved, in practice this is not always the reality. For example, Costa Rica, which is one of the most recognized ecotourism destinations in the world, has reaped many of the benefits of ecotourism while also experiencing unexpected negative consequences. According to Horton (2009), Costa Rica has an ecotourism system which has drawn tourists, resulted in economic gain for all stakeholders, and helped preserve the environment simultaneously. However, due to the government's favor of external participants in ecotourism development, some areas, such as the Osa Peninsula, have experienced negative consequences such as cultural loss and increased social stratification (Horton, 2009). A more extreme case, according to Wondirad, Tolkach and King (2019), occurred in Southern Ethiopia due to the lack of collaboration between the external organizations marketing and supporting ecotourism in the region and the local residents of the destinations, resulting in an insufficient benefit to the locals, and a disregard of the environmental effects of tourism, despite the ostensible purpose of protecting and promoting the environment. Thus, it can be determined that the success of an ecotourism destination is predicated on the involvement and investment of the locals.

Even with pure intentions, ecotourism can fail if not developed and implemented properly. The island of Tung Ping Chau demonstrates some potential problems that can arise from improper management of ecotourism. The main failures on the island were insufficient communication between the stakeholders and a disproportionate fulfillment of a single group's agenda (Loomis, Gasper, Miller, & Shuimiao, 2012). The residents and the tourists all had minimal influence in the implementation of ecotourism in Tung Ping Chau while the government exerted near complete control. This uneven influence eventually caused destabilization of ecotourism in the area (Loomis, Gasper, Miller, & Shuimiao, 2012). It becomes obvious through case studies that ecotourism is an industry that requires balance.

While not every ecotourism venture is successful there are areas where ecotourism has been quite successful despite unideal conditions, such as Phuket, Thailand, where despite a close proximity to other unrelated tourism operations, the ecotourism ventures are quite successful and an essential part of the local economies (Kontogeorgopoulos, 2004). When analyzing the success of ecotourism, one must be careful how this assessment is made, as different stakeholders in ecotourism often possess conflicting biases. This was highlighted in Yakushima, Japan, where ecotourism is seen very differently depending on both the subject of discussion, and whether a tourist or a resident is consulted (Adewumi, Usui & Funck, 2019). According to Adewumi, Usui & Funck (2019), residents had a consistently more negative view of the effects of tourism on Yakushima than the tourists, especially when asked if tourism caused overcrowding. Opinions vary greatly based on perception and point of view - when more points of view are added the network of opinions becomes more complex and the truth becomes difficult to decipher. An initial step to shaping an ecotourism destination that will prove satisfactory to all participating parties is to fully understand the cultural and historical context which a destination exists within.

2.2 The Romanian Context

Particularly in urban areas, the tourist industry is not only driven by the tourists themselves, but also a massive amount of infrastructure to house, feed, and transport these additional bodies. As such, measures including government regulations are required to manage the flow of visitors to tourist attractions. Additionally, it requires local businesses to service the tourists and tourists themselves to act as consumers. The sharing of information amongst all these parties is often difficult, despite their unified goals to grow the ecotourism industry, especially when considering a cultural and ethnic melting pot such as Romania.

2.2.1 Romania and the Transylvanian Highlands

In order to understand tourism in a region, one must first seek to understand the region itself. Romania is one of the most suitable countries for ecotourism with some of the largest areas of forests in Europe, 350 protected sites in the Natura 2000 network and rich cultural and historical heritage (Transylvanian Highlands, 2017). Many of these important resources are located in Transylvania, which is the largest region in Romania (Gál, 2018). The Transylvanian Highlands, an ecotourism destination certified by the National Authority for Tourism (Gál, 2018), is one of many sites that ecotourism can provide sustainable economic development for local communities while also promoting the beauty, culture and traditions of the area. Through ecotourism, Romania has a unique opportunity to increase its relevance as a tourism destination and gain recognition in the global market.

The need for growth in the tourism industry is in part caused by the changes in Romania's government, first by the overthrow of communism and then by joining the European Union. There is a movement to shift away from public reliance and to allow private organizations to sustain themselves (Hall, 1998). In the process, niche markets like those that benefit from Transylvanian ecotourism have started to become more prominent. In doing so, Romania has had to compete with the mass tourism of Western Europe in order to advance its mission to preserve and protect the environment (Hall, 1998). With a newly formed capitalist economy and an expanding private sector, Romania has opened the opportunity for ecotourism to grow into a prominent industry.

While the growth of private enterprise in Romania rewards organizations and companies with the freedom necessary to have a positive impact in areas such as the Transylvanian Highlands, there are also negative environmental consequences of the loose policy standards in Romania. Compared to other countries such as Italy, Sweden, the UK and the United States, more citizens of Romania prefer 'less' or 'much less' spending on environmental policies and measures (Todor, 2019). The lower motivation to commit to environmental policies has the potential to be harmful to not just the earth in general, but also to Romania's areas of natural beauty. Additionally, compared to other European Union countries, Romania's score on an Environmental Performance Assessment Index is quite low, meaning that their sustainable and efficient use of resources, their protection of natural resources and their use of alternative resources do not meet the standards of many other members of the European Union (García-Álvarez, & Moreno, 2018). Romania clearly has room for growth in environmental policy in order to catch up to standards set by other European Union countries, but public support must also be gathered in order for these changes to happen, necessitating the help of non-profit enterprises to demonstrate the value of Romania's natural resources to all parties. This provides a challenge to ecotourism but also demonstrates its necessity as a catalyst to incite these changes.

2.2.2 Overview of Romanian Ecotourism

Tourism during the era of communism in Romania was very different from what it has become now that it is a free market democracy. Some of this is a result of a change in the clientele. Prior to their abandoning the communist industrial and agricultural practices, Most of Romania's tourists were its own citizens as well as visitors from Poland, Czechoslovakia, and the German Democratic Republic (Light & Andone, 1996). Since then, all of those sources of tourism have declined due to the opening of global tourism to these regions following the fall of the iron curtain, causing some resorts to experience a significant loss in customers. Since shifting away from communism, Romania began to attempt to focus advertising their tourism around their rich medieval heritage. Sadly, the main target, westerners, had developed a bias against Romania due to their history of communism. So one of the main goals is to change western views and bring in tourism from that side of the world. One of the ways organizations in Romania have approached this goal has been by promoting one of Romania's greatest assets: its natural beauty and untouched landscapes. Ecotourism, which emphasizes the preservation of nature and culture, has been adopted across several areas of Romania as an ideal way to promote these assets. The Romanian countryside is a gorgeous setting for ecotourism. Rural Romania began attracting tourists in the late 1980s and early 1990s following the fall of communism. During this time the Romanian government took interest in the environment, as exemplified by the creation of the Commission for Mountainous Regions by the Ministry of Agriculture (Ploaie & Turnock, 1999). This environmental work has shifted from the exploitation of resources under communist rule, to the present initiatives to preserve the environment. The Romanian-American Foundation and other similar organizations have created and collaborated on initiatives to promote rural tourism within the country with the goal of preserving and protecting culture and natural beauty. Ecotourism in Romania can be broken down into six or seven smaller types of tourism, including rural tourism, cultural tourism, scientific tourism, adventure tourism, speleological tourism, and mountain tourism (Bălteanu, Dincă, Surugiu, Dumitraş, Micu, & Felciuc, 2008). The region of Transylvania can also appeal to fans of the supernatural along with the categories listed above, being home to legends such as Irish author Bram Stoker's Dracula

and other creatures that go bump in the night. Ecotourism as a whole is an effort to maintain beautiful places and interesting culture to be enjoyed as long as possible.

2.2.3 Overview of the Transylvanian Highlands Ecotourism Initiative
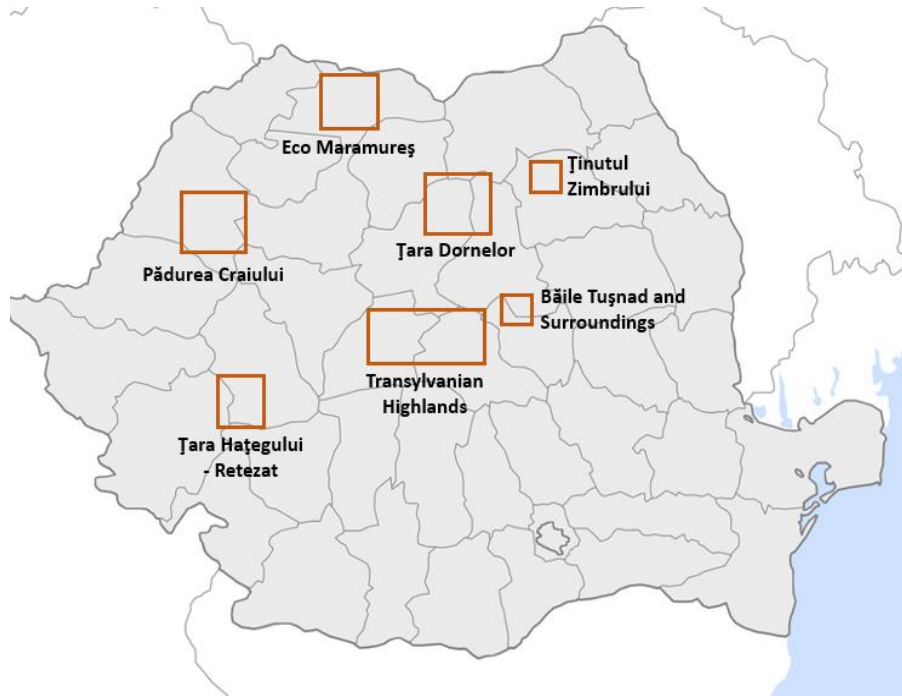
Figure 1: Eco-destination program regions

In order to manage ecotourism in the Transylvanian Highlands, an initiative had to be created. The Romanian-American Foundation and Romanian Environmental Partnership Foundation designated the Transylvanian Highlands and six other regions as ecotourism destinations as part of the Eco-destination Development Program in 2015 and created a destination management organization for the region (Roşca and Mihăilă, 2019). The goal of these seven initiatives is to be a "means to bring economic development" to each initiative's respective region, shown in Figure 1, "by transforming them into attractive ecotourism destinations" (Roşca and Mihăilă, 2019, p. 3). The plan made for these organizations can be found in Appendix A1. According to Roşca and Mihăilă (2019), each of these initiatives is meant to work in an assigned region to organize and promote collaboration between stakeholders, invest in tourist infrastructure such as trails and signage through collaboration and grants, contribute to policies regarding ecotourism, and promote the region's natural strengths that make it suitable for ecotourism. In some cases, these strengths are hiking trails while in others they include speleological caves, fossils, or bear observatories. While each of these ecotourism destinations are different based on the characteristics of the region, they are all similar in their purpose of promoting development of rural regions in Romania and attracting tourism throughout the country.

Figure 2: Transylvanian Highlands map (M. Dragomir, Personal Communication, February 26, 2020)

While the initiatives serve the same purpose, they are each different based on their region and what the respective landscapes have to offer. The initiative in the Transylvanian Highlands focuses on promoting hiking and biking tours of the region (Roşca and Mihăilă, 2019), which is shown in Figure 2. According to Roşca and Mihăilă (2019), the region is populated by fortified churches such as the Cârţa Monastery in Figure 3, enchanting historic villages, and long hiking and biking trails through natural areas. While serving the same eco-tourist purpose, they each have different types of attractions to promote.

Figure 3: Cârţa Monastery, Cârţa 557070, Romania (Colinele Transilvaniei, n.d.)

The Transylvanian Highlands stands out among the seven initiatives as the region is the largest of the seven initiatives (Roşca and Mihăilă, 2019), presenting a unique challenge to the

management team. An informal Transylvanian Highlands ecotourism board was created out of the cooperation of 7-10 organizations with goals aligning with the values of ecotourism. The organizations are listed in Appendix A2. The majority are non-profits, and all endorse the initiative's goals and objectives. Together, they are trying to promote and protect the aforementioned people, culture, and nature of the highlands (M. Dragomir, Personal Communication, February 3, 2020). These partnering associations work to organize and compile information on local guides and programs such that tourists can access the information, along with providing all forms of helpful services that a visitor might need from necessities to leisure activities (Colinele Transilvaniei, n.d.). The joint goal of these partnering organizations being to bring success to this new ecotourism destination they were now a part of.

2.2.4 Agencies Involved with Transylvanian Highlands Ecotourism

The Transylvanian Highlands Ecotourism Board is comprised of multiple separate organizations with ties to both ecotourism ideals, and the region. One of the partnering organizations involved in tourism in the Transylvanian Highlands is the Mihai Eminescu Trust, which is involved most notably in Viscri, where their earliest and most visible actions have been concentrated according to Iorio and Corsale (2013). While not an ecotourism organization, the Mihai Eminescu Trust aims to preserve the traditional architecture of the region and provide income to the locals through tourism (Iorio and Corsale, 2013), both of which are goals of the Transylvanian Highlands ecotourism initiative as well. Additionally, UNESCO is involved in the region, naming Viscri, among other locales, World Heritage Sites due to their fortified churches (Iorio and Corsale, 2013). The definition of World Heritage Sites can be found in Appendix B. Other organizations involved in the region include the foundations that created and support the ecotourism initiative, the Romanian-American Foundation, the Romanian Environmental Partnership Foundation, and the Association of Ecotourism in Romania (Roşca and Mihăilă, 2019). While these organizations do not all have the same methods, they do all have the goal of bringing tourism to the region in order to protect cultural heritage and architecture, and to benefit the locals.

With the multitude of organizations working together, an organizational structure to manage efforts was necessary. The destination management team of the Transylvanian Highlands operates as the coordinator for all of the stakeholders invested in ecotourism in the region, illustrated by the table in Appendix A3. These stakeholders are all individuals or groups participating in, interested in, or otherwise affected by tourism, including the government at various levels. Ecotourism expands the definition of stakeholder to all parties interested in or affected by the physical and cultural environment serving as host to the tourists. The stakeholders in the Transylvanian Highlands thus range from the simple farmer who lives in the region to local businesses, to the upper echelons of the Romanian government, and even to the tourists themselves. Ecotourism blends the concepts of traditional tourism and environmental protection in a way that creates a sustainable tourism industry but also incorporates many different points of view. This is evident in the many parties invested in the growing ecotourism movement in the Transylvanian Highlands.

The Transylvanian ecotourism destination of focus is located near the center of Romania. The Transylvanian Highlands covers parts of 3 different counties, 3 different governing bodies, 44 communes, and more than 100 villages with around 60,000 inhabitants (M. Dragomir, Personal Communication, February 3, 2020). Recently the population has been declining as

inhabitants are choosing to move elsewhere (M. Dragomir, Personal Communication, February 3, 2020). Almost all of the territory is a natural protected area and nearly 85% is considered rural. (M. Dragomir, Personal Communication, February 3, 2020). In short, the region is filled with diverse peoples and diverse opinions due to its large expanse.

2.2.5 The Challenges of Transylvanian Ecotourism

Although there is significant potential for ecotourism growth in Romania, there are still several challenges. A significant part of the Transylvanian tourism industry's digital infrastructure is still outdated. Accommodations for tourists within Transylvania are spread unevenly across many counties (Plesoianu, Grecu, & Popescu, 2018). With the facilities necessary to support tourism trips spread across such a vast area, it becomes difficult for a tourist to identify the best place to stay and even what all of the options are. Indeed, 89% of all overnight stays in the Transylvanian Highlands in 2018 were in just 4 villages or cities (M. Dragomir, Personal Communication, February 26, 2020), showing the potential growth for many of the different villages in the region. While the number of visitors to the Transylvanian Highlands and the number of overnight stays have both steadily increased each year since the creation of the ecotourism initiative (M. Dragomir, Personal Communication, February 26, 2020), there remains a need to better communicate with potential tourists. In both 2017 and 2018, the majority of tourists in the region were from Romania, followed by Germany (M. Dragomir, Personal Communication, February 26, 2020), which shows room for growth as a global tourist destination. Additionally, in 2018, 42% of tourists in the region knew about the Transylvanian Highlands from friends recommendations or their own prior knowledge, while only a minority learned about it through traditional promotional materials such as websites, social media and tour guides (M. Dragomir, Personal Communication, February 26, 2020). This highlights the potential benefit to the region of centralizing information such that it can reach potential tourists on a global scale. Ecotourism, like any other industry, requires sustainability which is predicated on efficiency and communication, and the Transylvania Highlands has room for improvement in its methods of disseminating information.

2.3 Project Origin

The members of the Transylvanian Highlands ecotourism board have agreed to work together as both competitors and allies; however, they lack an information hub for use by the different stakeholders along with the tourists to accommodate communication needs. The communication landscape in Romania has undergone a rapid transformation over the past 30 years, but the country as a whole, and the initiative in particular, are currently in the perfect position to improve their communication systems in order to better the efficacy of their model.

2.3.1 Communication: The Debate

Ecotourism destinations' large network of stakeholders necessitates a unique network of communication to enable successful cooperation. Collaboration is considered by many to be necessary between the stakeholders of ecotourism destinations. This collaboration is thought to ensure that the local residents remain involved in the development of their homeland as a tourist destination, giving them input into the process and the decisions made; whereas the lack of collaboration can seed mistrust and miscommunication (Wondirad, Tolkach, & King, 2019). A

collaborative relationship between stakeholders allows the values of the local stakeholders to be considered and can result in mutually beneficial strategies and practices.

Treating collaboration as a universal ideal oversimplifies the issues faced by the networks involved in ecotourism. While effective communication networks enable the dissemination of information so that all parties are aware of what is going on and empower all parties to have a voice in the decision-making process, their use also has consequences relating to efficiency and management. Wondirad, Tolkach and King (2019) identify some of these consequences as the requirement of additional resources and delays stemming from the lengthy discussions caused by collaboration which may discourage entrepreneurial development. The desire for swift action and quick gains may outweigh the desire to include all stakeholders in decisions, particularly for larger organizations whose primary motivation is economic gain rather than the preservation of a region. Even when communication exists, it can also be insufficient. Insufficient communication can still cause mistrust between stakeholders and may result in a power imbalance that negates the effect of the communication (Wondirad et al., 2019). Different parties have different valuations of the presence of effective communication between stakeholders of ecotourism destinations, often resulting in the parties with the power in the arrangement--generally the external organizations--neglecting to allow for communication between these parties. While good communication may benefit some stakeholders in ecotourism, it can also negatively impact the efficiency of ecotourism, which demonstrates the need to facilitate easy and fast communication networks with a clear distribution of powers.

2.4 Technical Research

Communication is a complex issue as explained previously; however, any solution to the communication problem within the Transylvanian Highlands ecotourism initiative will require the use of an online tool due to the large area that the region encompasses. For most companies or non-profits, the primary communication tool is a website, with several complementary features to supplement communications. In order to develop such a solution for the destination, an understanding of existing ecotourism destination websites, and a grasp of the advantages and disadvantages of different methods of creating a complete platform are essential.

2.4.1 Communication Platforms

Past projects have similarly delved into developing online platforms. An IQP in Guatemala developed a website for a non-profit ecotourism organization to increase public awareness and online presence. Through this project the group came to several conclusions regarding the level of technology to be used. This group eventually settled on the use of the website-making tool named Wordpress and its built-in automatic language translation plugin (Anyansi, 2012). This Guatemalan IQP was completed in 2012, and as a result it offers a good sense of the process our own IQP needed to go through, but current technology may offer better options. An important criterion in choosing the correct technology is the presence of an easy to use editing interface to allow the management team to easily make simple changes without employing a web developer. Thus, it was determined that any solution had to be predicated on usability.

2.4.2 A Website Builder

When choosing a website builder, we began our research by looking at third party points of view. We initially looked at recommendations online for ease of use in a website builder. Then we selected a few of the most promising looking web builders for further research and consideration. One of these top options for a website builder was Site123. According to Site123, one of its major features is the more than 250 design templates users have to choose from and the option to customize one's own template. The platform offers tools to create single page and multipage websites and allows users to reorder pages easily by clicking and dragging. It also supports visual testing for tablets and mobile devices and operates with 99.97% uptime and boasts strong processing speeds. Overall, Site123 is suitable for simple and content-driven sites with a relatively inexpensive plan of $17.28/month for professional business and e-commerce (Site123, 2020).

Wordpress has been commonly used in prior IQPs and as such was considered as a potential tool to construct the deliverable for this project. However, investigating the platform, we found that while very powerful, Wordpress was not an easy tool to learn. It had a complex editing interface fit for its flexibility in website creation (Wordpress, 2020), which would make it harder for the destination management team to make changes to their website after the completion of the project, increasing their workload when maintaining the website.

Another of the website builders available is Wix. It offers many of the desired features. According to the Wix website, some other features include hundreds of templates, and the ability to add custom code should the destination management team choose to expand beyond Wix's built-in features. It offers a mobile developing tool so the website can be easily optimized for use on mobile devices. Each of the tools available in the website builder are easily identified by a label that appears when hovered over, which makes for an extremely user-friendly interface. All in all, Wix serves as an easy option for beginners and shows no immediate drawbacks as price points range from free to $49/month depending on the features included (Wix, 2020).

After careful consideration of the different website builders, Wix was selected as a suitable platform for developing the destination website. In the past, IQPs have used Wordpress regularly. However, Wix is simpler to set up initially when compared to Wordpress. There are many tools to help with website building and it is extremely easy to learn. The website builder also offers free online hosting and varying levels of assistance depending on the selected package (Wix, 2020). Wix offers potential for features that the initiative may wish to use in the future. The ability for a developer to add its custom code to the website makes the use of Wix a potential permanent solution which can be adapted in the future to serve the needs of the destination.

2.4.3 A Database

A crucial part of fixing the lack of communication within the ecotourism initiative is the creation of several databases. With a place for all information to be stored, even multi-language support will become a trivial matter. The first step is to assess the different groups and what form of information must be stored about each of them, followed by actually creating the database and inputting data. Wix has databases available for use when creating a website. Their version is quite useful as it allows the storage of not only many different written data types, but also images

(Wix, 2020) The use of databases allowed for a simplified organizational structure of the destination website.

2.4.4 Wayfinding

An important factor in the ease of use of a website is wayfinding. Wayfinding is defined as the process that users employ to make their way from their starting point to some target (Tan & Kwok, 2006). Wayfinding is important to website design because users are unlikely to revisit websites that are difficult to navigate and use (Tan & Kwok, 2006). According to Tan and Kwok (2006), there are three subprocesses in wayfinding that are used: cognitive mapping, decision generation, and decision execution. Tan and Kwok explain that users first generate an image of the website's environment mentally, using prior knowledge, inferences and sensory information, then they generate a set of decisions that constitute a route from their current location to their target based on their cognitive map and attempt to execute these decisions if the user is unable to execute a decision - that is, if the required information to follow the route is not present - then the process starts over again, with the user re-assessing the current environment and updating their cognitive map (Tan & Kwok, 2006), as the wayfinding process is iterative. In websites, tools that users employ for wayfinding include navigation bars, sitemaps and hyperlinks (Tan & Kwok, 2006). They can travel either linearly, following a direct path from one point to another, or nonlinearly, jumping between pages using the navigation bar (Tan & Kwok, 2006). According to West and Leskovec (2012), it has been found that when wayfinding, users often utilize general hubs initially (i.e., they will use the main menu), and then they turn to content features to drive their navigation (i.e., they will click links with names that approach their target subject). Using the understanding of wayfinding principles, web designers can better understand the needs of website users in order to design a website with better usability.

Wayfinding principles can be applied to website design to determine a set of best practices in order to consider and improve the wayfinding experience of users. According to Tan and Kwok (2006):

- The graphical presentation of the website should be consistent so that users can easily learn to recognize patterns and methods;
- Graphics should be used strategically to capture users' attention in specific places and make presented information more understandable;
- High contrast colors should be used for the background and text - in particular, black text and white background - in order to make text easy to read and process;
- Scrolling should be kept to a minimum so that most information can be absorbed from one screen;
- Hyperlinks should be well-labelled so users can easily predict their path;
- Title headers should be present and accurate, so users are assured they are in the right location; and
- Sitemaps should be present to help users understand the content, scope and organization of the website.

Luna-Nevarz and Hyman (2012) suggest that an additional practice to improve wayfinding is to group information content into a few categories with descriptive names. By following these best practices defined by wayfinding principles, it is possible to create websites to encourage users to revisit the website.

2.4.5 Best Practices and Evaluation

Any design project will have some similar past projects to pull best practices from, and website design is no exception. According to Gergle, Brinck, and Wood (1999), there is a specific process to follow for designing a website with high usability. The steps are planning, analysis, prototypes, production, testing and launch, and lastly, maintenance. Additionally, located in Appendix C is a testing checklist that serves as a reference for developing website evaluation tools intended to improve on the initial prototype of the website.

There are some general best practices of website design that can be followed in order to improve the overall quality of the website and the user experience. First impressions are important, as they bias a user - either positively or negatively - in many or all other evaluations, and when an individual opens a website, they generally develop their initial impressions within 7 seconds (Luna-Nevarez & Hyman, 2012), which means that the content immediately visible when the page is loaded must result in a positive impression. Luna-Nevarez & Hyman (2012) go further to say that positive first impressions of a user will help them feel as if they can make well-informed decisions using the website, since a user's impression of the credibility of a website is influenced by their impression of the quality and usability. Tarafdar and Zhang (2008) identify seven categories of factors for websites: the information content, the ease of navigation, the usability, the customization, the display speed, the security and the availability. These categories are used by Tarafdar and Zhang to identify predictors of a website's reach, which is defined as the number of distinct users of a website, and loyalty, which is defined as the average number of visits of unique users to a website. Tarafdar and Zhang find that the primary predictors of a website's reach are its information content, usability, ease of navigation, and security while the primary predictors of a website's loyalty are its ease of navigation, customization, security and availability, therefore these elements should be focused on to ensure the success of a website. By focusing on these areas in all features implemented, the success of any kind of website can be ensured.

Destination websites are a particular style of website, and while general website conventions still apply to them, a stricter set of conventions can be outlined for this specific category. Luna-Nevarez and Hyman (2012) claim that destination websites should be enjoyable in order to capture the user's attention, as the user will associate the website's attributes with the destination, thereby influencing their choices regarding their travels to the destination. Based on the characteristics of top destination websites, according to Luna-Nevarez and Hyman, a successful destination website:

- Has both informative and commercial content;
- Has pages which are only 1-2 screens long and have a layout that is balanced among columns;
- Includes many pictures and graphics;
- Has a simplified navigation with only 0-10 links in the main menu;
- Includes tools such as a sitemap, search bar and language translation
- Relies more heavily on images than text on the homepage; and
- Has a title.

Additionally, since destination websites rely on search engine hits to attract users, an accurate and descriptive website title is an important element on a destination website to ensure that it is placed high in search results (Luna-Nevarez & Hymen, 2012). These best practices for

destination websites can be used to attract tourists and ensure a good user experience, as destination websites become an increasingly important tool for individuals planning travel.

2.5 The Principles of Communication

Understanding the culture and people is an important first step when working with communication. Simply picking the best solution from an outsider's viewpoint can lead to well-meaning projects that bring no real benefit. Taking this information into consideration, a valid solution with a reasonably high rate of success can be devised. In this case, a destination website will serve as the solution for the stakeholders communication needs. After research comes the planning of the steps necessary to reach the end goal of the project. Mapping out the steps one will take beforehand alleviates confusion and some potential mistakes, and in addition, incorporating the background research into this plan will make it all that much stronger. Thus, using this literature review we create a plan of action to develop the deliverables required to satisfy the Transylvanian Highlands Ecotourism Board's communication needs.

Chapter 3: Methodology

When creating the ecotourism destination's website, complex communication concepts including ease of use and information filtration will need to be applied in order to optimize the efficiency of this tool. To supplement our background research, we began by collecting qualitative data. This research involved analysis of current communication channels, which we accomplished by conducting semi-structured interviews with the destination management team and the Transylvanian Highlands tourism board, and surveying the larger stakeholder body to supplement the information ascertained in the interviews. We used the information from these interviews and surveys to generate our methods of content management in order to best serve each interested party. Next, the data gathered was analyzed in order to determine the shortcomings of the previous website and the additional needs of the network. Once the issues and assets of the original website was assessed, the next step was to generate some ideas as to how we can keep the positive aspects and solve the issues. Upon the collaborator's agreement, the solution was developed with an initial implementation that was then tested and revised. Upon completion, we had the final deliverables - a functioning destination website and the necessary materials for the website administrators to continue to maintain and improve the website - was presented to the destination management team. The timeline of this process can be found in the form of a Gantt chart in Appendix D, and the goals and objectives table corresponding to this methodology are located in Table 1.

Table 1: Project Goals and Objectives

Overall Project Goal	Methodology
The goal of this project was to develop an information hub for the stakeholders of the Transylvanian Highlands ecotourism initiative, for the purpose of furthering the organization's mission and promoting a collaborative relationship in the region.	We had to research the needs of the individual interested parties for more effective communication between all stakeholders in the Transylvanian Highlands ecotourism initiative and through a concrete list of requirements, design and develop a website to meet the needs of the network.
Project Objectives	Subsidiary Methodology
(1) Examine the existing website.	- Visit the current destination website and analyze the current features. - Interview the stakeholders we expect to use the website in the future on what they like about the current website as well as what they would change. - Interview the destination management team on what they want to keep and

	change from the current website.
(2) Recognize the gaps and pitfalls of the current website.	• Interview stakeholders about their use of the previous websites • Analyze interview data to determine what stakeholders want in a website they use as a part of their business.
(3) Analyze existing examples and best practices of web design and compare to the current systems of the initiative.	• Survey the stakeholders about their current online presence and their desires for a website
(4) Promote the advancement and expansion of the ecotourism industry in the Transylvanian Highlands	• Develop a tool that operates under the best practices of ecotourism and web design • Create a tool with the ability to grow as the initiative expands in its ability to support new features

3.1 Acquisition of Information

The first step in designing an information hub for the Transylvanian Highlands ecotourism initiative was to understand the users and the previous system. This enabled us to identify the shortcomings of this system that had to be fixed in the revised system, and the key requirements that were already met and had to be replicated. It also allowed us to begin identifying the unique needs of all the stakeholders to enable them to use the new system with regularity and efficiency.

In order to do this, we held a series of interviews and surveys. The semi-structured interviews were conducted using the questions in Appendix E1 with members of the Transylvanian Highlands destination management team who were responsible for running the old website as well as other existing communication methods. Additional semi-structured interviews using the questions in Appendix E2 were held with members of the Transylvania Highlands tourism board in order to determine their desires and needs for the platform. Surveys with the questions in Appendix E3 were also both distributed as an online form and administered verbally - depending on the individual's level of English proficiency - to local business owners to assess their familiarity with technology and their communication needs in the context of the ecotourism initiative.

3.1.1 Stakeholders in the Transylvanian Highlands Ecotourism Initiative and their Respective Roles

The Transylvanian Highlands ecotourism initiative has a multitude of stakeholders, and these can be placed into three categories: local business-owners; local, national and international organizations; and governmental bodies, as seen in the table in Appendix A3, though due to limitations of the remote project, governmental bodies were not addressed. The first category, local business-owners, is very broad and includes many individual bodies, not all of which can be studied independently. For this reason, this category of stakeholders was primarily addressed as a whole, through communication with the Transylvanian Highlands destination management team. The next category of stakeholders is local, national and international organizations active in the Transylvanian Highlands. The list of all of these partners can be found in Appendix A2. These organizations were investigated individually by interviewing each consenting ecotourism board member.

3.1.2 Ascertainment of Attitudes Towards Current Methods of Communication

In order to determine the requirements of the future online communication platform, the stakeholder's opinions on the current platform had to be determined. Semi-structured interviews of members of the Transylvanian Highlands destination management team involved in these communication channels and members of the Transylvanian Highlands tourism board were used to obtain information about aspects of the previous communication platform that worked, and aspects that didn't work. In addition, surveys of local business owners were distributed using Google forms and conducted over Zoom in order to assess how businesses currently utilize technology systems, to obtain opinions on active business participation in the new information hub and to better understand the needs of local businesses. While we were only able to survey a small sample of the local businesses, this gave us insight into how people view collaboration and communication in the region, and what they needed from the initiative to help their businesses succeed.

3.2 Analysis and Application of Data

Following the series of interviews and surveys, the data obtained from them was analyzed and applied to the website design. To do this, we aggregated the data collected and found commonalities. Using the aggregated data, a list of requirements was developed that met the various needs of all the stakeholders within the project timeline. This list of requirements was used to inform the overall design of the online platform.

3.2.1 Analysis of Data from Interviews and Surveys

The responses of the semi-structured interviews and surveys had to be organized into a form in which the data could be analyzed. To do this, we reviewed the notes from all of the interviews held, and codified the responses, identifying specific areas of need described. We then identified the frequency that an area of need was mentioned in general, and across a category of stakeholder. The codification of these needs allowed us to identify how strong a need was across all stakeholders as well as within one category of stakeholder. The survey data was aggregated and analyzed to determine the frequency of different responses, and any short answers were

codified to identify commonalities. The data also aided in generating a prioritized list of features for the development of the website.

3.2.2 Development of a List of Requirements

Based on the aggregated and codified interview and survey data, as well as our background research into website design, we compiled a list of requirements for the online communication platform in order to ensure that best practices were followed and all stakeholder needs were met when possible. This list was prioritized based on the needs of the stakeholders as a whole, and the individual categories of stakeholders as well as the feasibility of the feature. To do this, the frequency of the different coded areas was assessed in order to prioritize areas that were either mentioned frequently across all stakeholders or mentioned frequently within one category of stakeholders. The best practices discussed in the background chapter were also applied to these requirements, ensuring the presence of known best practices in the new website design. Finally, the aggregated results of the surveys were used to determine features and requirements necessary to enable accessibility to all stakeholder parties.

3.3 Implementation of Chosen Design

With the knowledge of the needs and priorities of the stakeholders and the collaborator's preferred implementation plan, it was then time to build the first iteration of the information hub. The first draft of the website was intended to address almost all of the requirements established. While all features were not as polished as a finished product, it was important to provide the appropriate features to move on to testing.

3.3.1 Construction of the Site Outline

The first step in constructing the website involved creating a skeleton outline of the website itself before any specialty features or in-depth information was added. Based upon the sitemap agreed upon with the destination management team, folders and pages were added to the website without including the text or image content. The next step was to add in the features listed in the requirements determined in Section 3.2.2. Simultaneously, all of the content for the pages written by the destination management team was added. With all of these elements, the website was ready to begin testing to optimize and polish the design.

3.4 Testing and Adaptation

Every design project requires multiple iterations to reach a state adequate to serve as a final deliverable. For a website such as this, there are many variables and features that will need to be tested and polished in order to reach an optimum state. The best method of accomplishing this was to have the potential users test it and provide feedback.

3.4.1 Testing the Website

It is critical to test any version of a technical project for failures and insufficiencies. Developing an ideal and versatile website for the Transylvanian Highlands required a process of testing and adapting. The key aspects to test for were basic website function, learning curve, and the special functions the collaborator requested. It was essential to smooth out any confusing

website features and ensure that necessary improvements had been made. Once the first draft of the website was constructed, a complex analysis of the entire website was performed using a Google Form based on the checklist in Appendix C in order to ensure the success of the project.

One of the issues that this process was intended to fix is tunnel-vision design. It is common to design something that makes sense to the designer but not to the people who will use the website. In order to ensure that the solution worked, it was beneficial to test the website for ease of use. The best way to do this was to conduct a survey distributed to the destination management team after the first draft of the website was completed. This qualitative data was then used to adapt the final iteration of the website.

3.5 The Deliverable

The final deliverable, the website itself, was intended to address most if not all of the requirements we established in Section 3.2.2. Accompanying documentation to satisfy the current and future needs of website administrators was also produced. The produced destination website and its accompanying features will be discussed and depicted in the next chapter.

Chapter 4: Results and Findings

In this project, we developed a web platform to serve as a communication hub for the Transylvanian Highlands. The design of this platform was informed by a series of interviews and surveys distributed to the stakeholders in the Transylvanian Highlands ecotourism initiative, the codified results of which can be found in Appendix F1-3. Following the creation of the first draft of the platform, the website was evaluated by ourselves and the destination management team, using Nielsen's Heuristics. The results of this evaluation can be found in Appendix H. Using this evaluation, we further honed the website design to ensure that all of the key features worked smoothly as intended. The completed website can be found at: https://mihai654.wixsite.com/transylvania at the time of the publication of the paper, but at some point in the future will be located at: https://transylvanian-highlands.com/.

4.1 Promoting Ecotourism

There is a large social impact involved with working with an ecotourism initiative, as the initiative is tied to many local businesses. To that end, creating a communication platform to promote the entirety of the Transylvanian Highlands requires the promotion of the ideals that are associated with ecotourism. The two main methods of accomplishing the advertisement of ecotourism were through an immersive homepage and the extensive site content incorporated in a colorful and organized fashion.

4.1.1 Drawing the Eye

The homepage is the heart and soul of the website. As the website loads users are presented with a promotional video that immerses the viewer in the gorgeous landscapes of the Transylvanian Highlands. This is all in an attempt to make the viewer feel as though they are already there, and to give them a positive first impression of both the website and the destination in order to encourage them to continue exploring the website. This inclusion is also driven by the results of our interviews in Appendix F1-2, which show that an immersive video on the homepage, visible in Figure 4 was one of the most appealing aspects of the old website. In addition, the header contains the destination logo, navigation bar, and language selector, as well as a link to an app with an interactive map of the region. The language selector is an essential component of the website in order to promote the Transylvanian Highlands as a global destination. While the official language in Romania is Romanian, the website being primarily in Romanian would make it inaccessible to most international users. As such, the language selector is located prominently so that users can ensure that the website is in the language option they feel most comfortable in immediately. Likewise, the navigation bar is placed in an accessible location as this is the primary navigation method throughout the website. This bar is fixed, meaning that when users scroll it remains at the top of the screen, which enables easy access to these tools throughout the user's visit to the website.
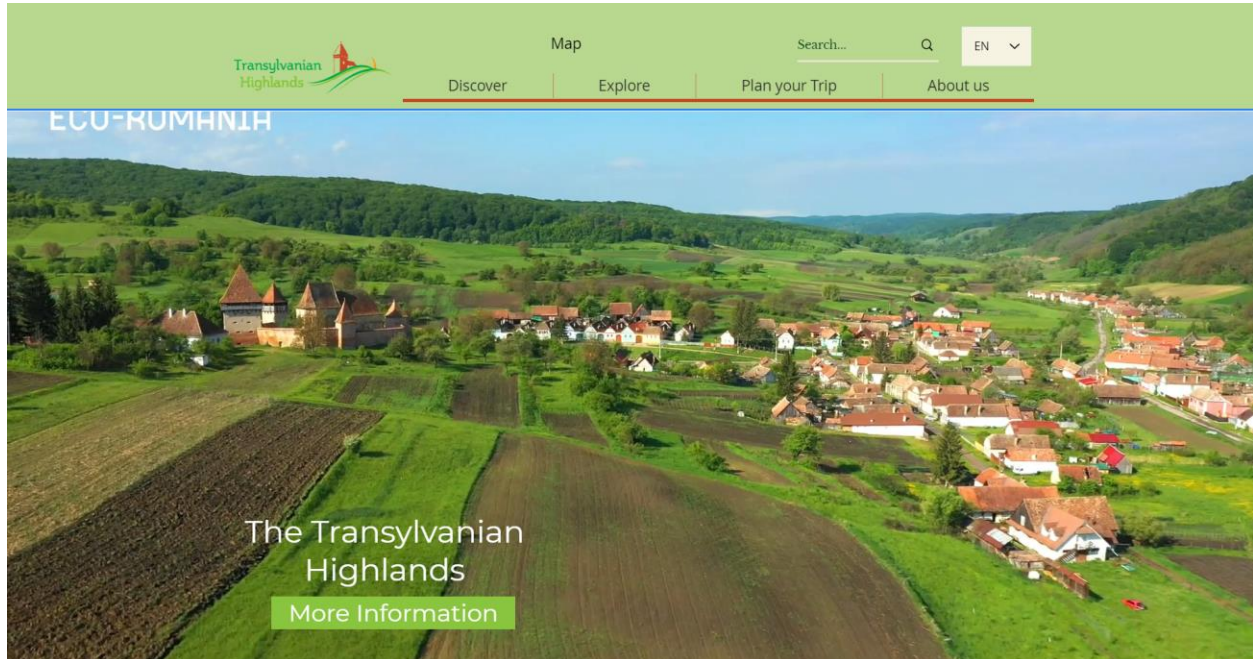
Figure 4: Homepage and Header

As a user scrolls past the video on the home screen, the other two features of the home page come into view. First a featured events slideshow, depicted in Figure 5 allows the viewer to

Figure 5: Featured Events Display

get a preview of three events of the destination management team's choosing. Since the region's events, which frequently highlight the beautiful landscapes as well as the exciting gastronomy of the region, are considered some of the most effective attractions, the featured events slideshow serves to pique users' interest. As each

event includes a link to a page with more information, users are encouraged to click and explore the website. Following the events slideshow is an element called a repeater, which shows multiple elements in an identical format. This repeater contains the chosen articles the destination management team wishes to display on the home page and can be seen in Figure 6.

These serve as an excellent way to introduce a viewer to the happenings of the destination and allows the users access to more information should they wish to explore more.

4.1.2 Information Organization

Another part of the old website and part of the content we were given, which many expressed approval of was the colorful language with which all of the sections were titled. Although the titles and subpages were organized differently, the figurative and descriptive theme of the language was kept. For example, the titles of each menu section are Discover, Explore, Plan your Trip, and About us. Each subsection is related to things visitors can do or places they can visit. Nearly all of the content on the website is focused on promoting and informing the public about all of the unique and intriguing reasons to visit the Highlands. Almost all of this content also includes enticing images in order to draw the reader in. The Discover section of the website emphasizes the unique attributes of the region, providing in-depth information about the natural features, wildlife, architecture, and trails that populate the region. The pages in this section emphasize the attributes of the region that lend themselves to ecotourism and also provide information about how to respectfully appreciate these landmarks. The Explore section primarily focuses on activities in the area, from activities like trekking and cycling, to activities that the entire family can partake in, like geocaching. The Plan your Trip section provides the necessary information for users to create their own travel details, with information about accommodations in the region, restaurants, and general travel advice. This section is particularly helpful to users who are not from Romania who may not have easy access to this information elsewhere, in order to expand the reach of the destination to a global scale. The About Us section informs users about the destination and its management, and provides the necessary recognition of the financial and advisory support the destination receives. By splitting the content of the website up into these distinct sections, the website is made to be easily navigable by users, to ensure that any information that a user is seeking can be easily found.

Figure 6: Front Page News Display

4.2 Increasing Stakeholder Communication and Involvement

A key issue with the old website was its inability to function as an additional communication channel with the ecotourism stakeholders in the region. In response, one of the primary objectives of this project was to create a tool to enable this functionality. There were four ways in which we accomplished this. The first way was to generate community interest and emotional investment in the project through interviews. Next, we created a member system to separate the region's stakeholders from the region's potential tourists. Later, we developed an editing permission scheme which served to lessen the strain on the destination management team and also create a formal way for members of the ecotourism network to express their desires for

the destination website. Lastly, we created a method for members to advertise their own events on the destination website by logging their events on a centralized page for the destination.

4.2.1 Interviews

In order to inform our choices on the project, we conducted interviews with members of the ecotourism board and the destination management team. The codified data we collected from these interviews can be found in Appendix F1. We also conducted surveys of local business owners. This data can be found in Appendix F3. These interviews and surveys served two purposes. They gave us an idea of which website features were the most necessary in terms of our given timeline, and which features could be left for future projects, or for the destination management team to implement themselves with guidance from our supplementary materials. The ordered list of features can be found in Appendix H.

Additionally, interviewing a diverse set of members from the ecotourism network and using these interviews to inform our choices in website development promoted a collaborative climate and ensured that members of the network felt that they were included in the process. In fostering these viewpoints, we intended to encourage the use of and contribution to the website by members of the network, as a shared project.

Figure 7: Member Signup Form

4.2.2 Membership

Membership is a key aspect of this website. Membership is intended to be granted to members of the ecotourism network, and allows for the stakeholders to actively participate on and feel included in the website. It creates an environment in which members can contribute content to the website. We created a very simple membership account request form, shown in Figure 7, which when submitted requires administrator approval. This ensures that the destination management team has control over the website membership, to avoid unwanted behavior by anonymous internet users. The membership part of the website creates a lot of flexibility in how the website is run, allowing the administrators to maintain control without doing all the work themselves.

4.2.3 Editing Permission Scheme

The editing permission scheme is designed so that the destination management team are the administrators of the website, meaning they have final and complete control over the website. Other roles have also been developed to allow members of the network to provide their own

input easily and frequently. In this permission schema, the three permission roles are admin, website contributor, and member.

       The admin role is designed specifically for the use of the destination management team. The role provides complete control of the website. The only exceptions to this are features restricted to the owner of the website, who is a member of the destination management team. The website owner has the ability to choose whether or not admins have the privilege to publish the changes they make to the website. These permissions allow the destination management team to oversee the general development of the website and ensure that all content on the website aligns with the values of ecotourism.

       The website contributor role is for the members of the network trusted to use the website editor without the supervision of the destination management team. The role functions by giving all the same editing privileges that an admin has but restricting sensitive information like payment information and private user information. This will ensure that in future if the website use is expanded to include functions like booking, and product listing, user data will be protected, and access to this data will be limited to a very select group. It also will ease the responsibility of the destination management team and allow the work of maintaining the website to be distributed to a larger group.

       The member role is designed so that all members of the network have a way to share their requests and desires for the website. This was accomplished through a page, shown in Figure 8, only available to members titled "Request a Change" which can be accessed in the footer on the website. This form will allow any member, which could be a member of the tourism board, or a local business owner, to request a change to information on the website, but ensure that the destination management team has the chance to moderate this content. This control lets them more efficiently gather information to add to the website, such as business contact changes, or new activities available, without potentially compromising the goals of ecotourism.

Request a change to the website

Name

Email Address

Phone Number

What needs to be changed and why?

Submit

Figure 8: Request a Change Form

4.2.4 Member Added Events

Much of the information on the website is stored in databases that Wix calls collections. This applies to the events displayed on the website; however, one thing that is unique to the events database is an added functionality to allow members to add their own events, ass shown in Figure 9, to the database through a members-only page which can be accessed in the footer. The events that users enter are then displayed on the Events page, which also allows users to filter events by location, date range, and keyword. This system overall allows a large number of events to be listed on the website, in order to inform users about all of the happenings in the region, while making the information easily searchable and relieve the destination management team from the responsibility of inputting all of the content. The Destination Management Team does maintain control of the details, however, and can remove any event they deem inappropriate for the ecotourism website.
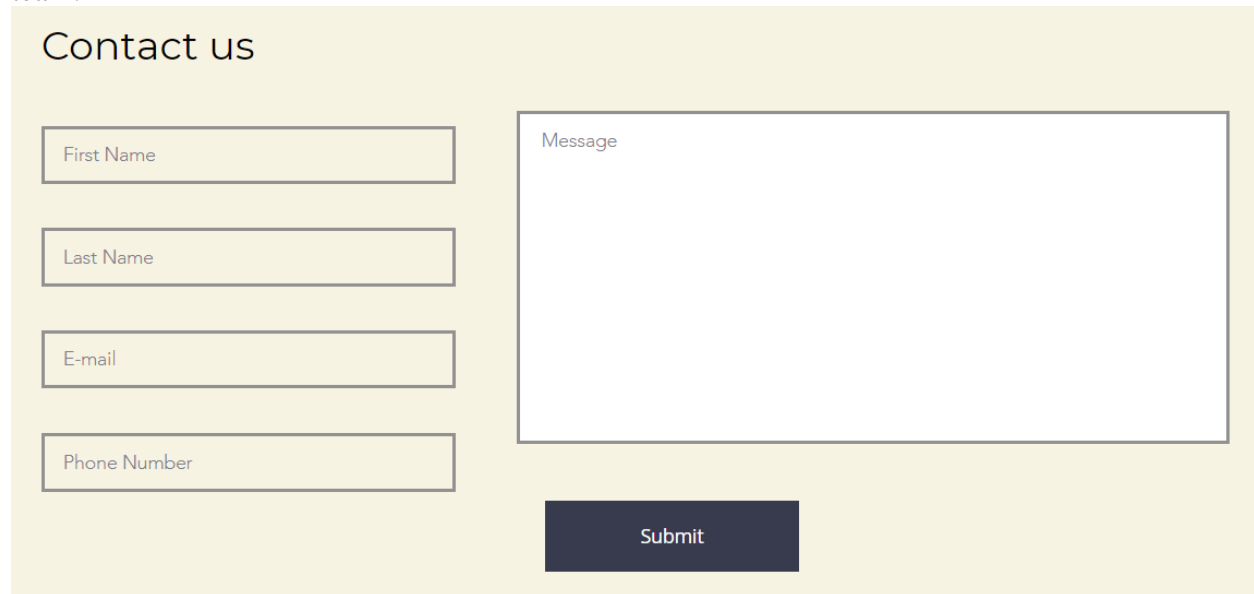
Figure 9: Add an Event Form

4.3 Increasing Website Efficiency

While using the previous destination website, the destination management team identified the potential to increase the efficiency in its functionality and maintenance. To that end, the new website had to tackle this challenge, which was accomplished through a notification system, an efficient multilingual system, and dynamic databases and corresponding pages.

4.3.1 Notification System

In order to alert the destination management team to changes and requests made by members of the website, an email notification system was created. Notifications are sent whenever one of the forms is submitted, be it the event addition form, the requested change form, or one of the general forms, such as the contact form in Figure 10 or the volunteer form. This allows the destination management team to monitor the input of members of the ecotourism network easily without having to search through the website for changes. These forms will improve the efficiency of the information population of the website, as they enable the editing schema to be practicable without placing an additional burden on the destination management team.

Figure 10: Contact Us Form

4.3.2 Dynamic Pages

Wix provides a tool called "Dynamic pages" to efficiently display information collections in a consistent format. Dynamic pages allow for the website administrators to store all related information in one central collection that all will display as a preview in a collection page, and create an item page for each individual item in the database. The collection page contains general static information, and a repeater that shows all of the items in the database, featuring the name of the item, and a picture if available. When a user clicks on an item in the repeater, they will be directed to the corresponding item page. Since the repeaters will only load a limited number of items at a time, at the bottom of the page, an invisible line is placed on every collection page which when it enters the viewport, will trigger an additional set of items to load in the repeater. This ensures that all database items will appear on the page while avoiding a long initial load time as all of the items -which can number up to 50 in the current databases -load. An example of a dynamic collection page can be seen in Figure 11. The item pages are all driven by a single template page for each database, and the data in the corresponding database. The item pages contain all the information about a single item, like pictures title description and relevant contact information. Overall, the dynamic pages allow for all information to be stored in the same location, and for simplified and efficient organization of information to be displayed on the

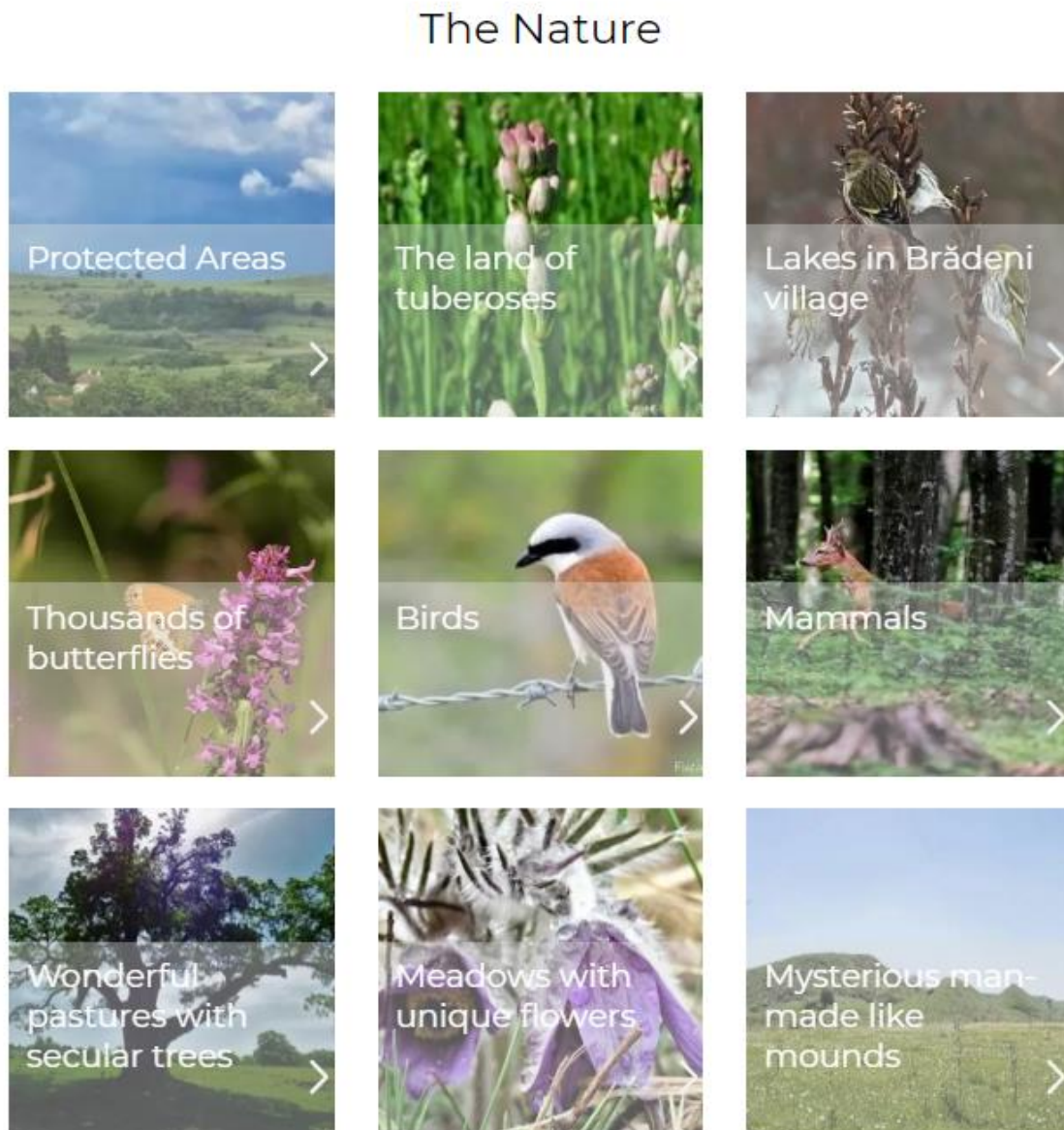website. As a result, much of the subjects of interest on the website are displayed in dynamic page format.

Figure 11: Example of Dynamic Collection Page as seen on "The Nature" page

4.3.3 Multilingual Options

One of the primary upgrades from the old destination website to the new one is the simple multilingual functionality. Wix Multilingual requires a primary language be selected. This language should be what the website will be developed in most of the time, so the destination management team requested the primary language be Romanian. Wix supports the addition of many different secondary languages and allows them to be hidden from the public but available in the editor so that their accuracy can be ensured before publishing. For static elements on the website, enabling multilingual services simply requires switching to the desired

language version in the editor and selecting the element and then either "Translate", or in the case of text elements, "Translate Text" or "Translate with Google." The Translate with Google option will automatically translate text from the primary language to the secondary language, and this translation can still be edited for accuracy afterwards. The Translate and Translate Text options allows editors to manually change the content, be it a link, an image, or text. Wix does not support multilingual dynamic pages or databases, so as a result, we had to add this support ourselves using Wix Code. Standardization for this functionality was ensured by implementing a uniform practice of adding a column per language in the database for each desired multilingual content parameter with a standardized naming convention using the language codes. Based on this format, short, easily customizable JavaScript function templates were created to check the selected language and fill in the appropriate content in the elements on the dynamic webpages. Since the language codes were used, this JavaScript code was generalized in such a way that it will not need to be altered in order to support additional languages should any be added, the destination management team would only need to add columns in the databases with the appropriate content. Between these two methods, the editor interface presents the administrators of the website with features to ease the learning curve and eliminate some of the work needed to maintain a typical multilingual website.

4.4 The Destinations Initial Plans for the Website

Some features that were determined to be necessary were also determined to not fall within our project timeline. There were a few features that the destination management team thought would be better served by the destination management team implementing them instead of this IQP team. Also, their desire to spend some time learning the website before they connect it to the domain and release it to the public required some feature implementation to be postponed until that was completed. Our collaborators asked that we wait to connect the website to the live domains so that they could become more familiar with the website and add more information and meta-data. It is important to note that the website will need to be connected to two domains, one English and one Romanian.

4.4.1 Search Engine Optimization

The search engine optimization (SEO) tool is used to attach metadata used by search engines to find the information relevant to the search input. Search engine optimization is essential on a destination website, as it will ensure that users of search engines can find the website when using relevant search terms, so that internet users who are not familiar with the destination are able to discover it. In order for the SEO to work metadata needs to be attached to each page. The destination management team requested that they add the metadata themselves after the completion of our project.

Wix has what they call an "SEO Wiz" that walks users through the process of setting up SEO. An important step in this process is, as previously mentioned, adding metadata to each website page. This metadata is both what informs Google in fetching search results, and what is displayed as the page title and description in those search results. Both of these elements are important, so that users find the page in search results, and then are encouraged by the description to open the page. There are additional steps that the destination management team will be able to take to improve the website's chances of appearing high in search results, including submitting the sitemap, which Wix creates automatically, directly to Google after

verifying the site with Google Search Console, and making the website accessible which adds textual indicators to elements such as images. By following Wix's SEO tutorials and checklists, the destination management team will be able to ensure that their website reaches potential tourists.

4.4.2 Analytics

While Wix has an in-house analytics platform, they also allow premium users to connect Google Analytics to websites with custom domains to obtain more in-depth data about usage. This tool will be helpful to the destination management team, as it will allow them to observe the timeline of website use, the regional makeup of their website users, the source of users (where they clicked a link to access the website), and many other useful statistics. This data will allow the team to analyze how users are using the website, the effectiveness of the website, and the impact of any other promotional efforts, such as attending fairs, on the visitation of the website. This will enable them to optimize the website to fit users' needs, and to improve other promotional work to strengthen reach and effectiveness. Since this can only be enabled once the website is connected to a custom domain, this step will have to be taken by the destination management team, but fortunately it is a simple process involving just creating an account, and adding the provided Tracking ID to the Wix site.

Chapter 5: Conclusions and Recommendations

The Transylvanian Highlands, with its rich cultural heritage and beautiful natural landscapes, is an ideal location for ecotourism. This ecological concern being novel in Romania in general, and only recently introduced as an environmentally sensitive form of tourism, there is still room for growth before this destination will make it onto world maps. In this project, we addressed one of the major areas for improvement in ecotourism in the Highlands - the communication networks between stakeholders and to potential tourists. We hope that the project will support the further sustainable development of the region into a successful ecotourism destination, and will also ease the burdens on the dedicated people who have been working to put Transylvania on the tourism map.

5.1 Potential Future projects

While we believe that this website will fulfill its purpose, we have identified several areas of the website that could be addressed in future projects in order to expand the reach of the website and better support the Transylvanian Highlands as it grows into a more successful ecotourism destination. These projects could either be taken on by the destination management team and their associates, or by a future WPI IQP group. Documentation on several of these projects exists in our documentation package, found in Appendix J. In addition, the Transylvanian Highlands is just one of seven ecotourism destinations in Romania, and all have the potential to serve as the source of future IQP projects.

5.1.1 Booking

One of the most polarizing features discussed in our interviews was that of a booking platform. Many people were interested in this feature but were skeptical of how it would function due to the complications in making a system that would be able to create bookings for many different locations and would therefore be required to have a sophisticated communication protocol. We also found through our surveys of local business owners, the results of which can be found in Appendix F3, that at this time, many businesses were not capable of accepting online payments, which would further complicate the process with a non-standard policy of charging for booking deposits. As a result of these complications, the destination management team decided it was a feature that they were not yet ready to support. While there is not currently a capacity to support this functionality, as the destination expands and the website attracts more traffic, it may be beneficial to local businesses for the website to support booking, so that tourists are able to do everything in one place, encouraging them to book the accommodations featured on the destination website. It must be considered that this would be a complex and delicate project, since the Wix booking platform is not designed for the booking of different businesses on one website, so as part of this project a complex protocol for communication would have to be created either using built-in Wix features or another notification application program interface (API) that would allow businesses to be notified of bookings, and any changes made to bookings. It would also be helpful for the project to create an interface for business owners to see all bookings made for their services, which could take the form of another website or a hidden

section of the destination website. This project would also likely require a more complex permissions schema to be created. While this may be a difficult thing to implement, it has the potential of drawing more users to the destination website and encouraging the cooperation of businesses in the website and their compliance with ecotourism ideals.

5.1.2 Adding more interactive features

The destination management team expressed interest in including many interactive features, such as maps. While we were able to include an interactive map on the Villages and Fortified Churches page, these items were too time-intensive to create in bulk, as they required both custom Wix Code to be created and for graphic assets to be designed.
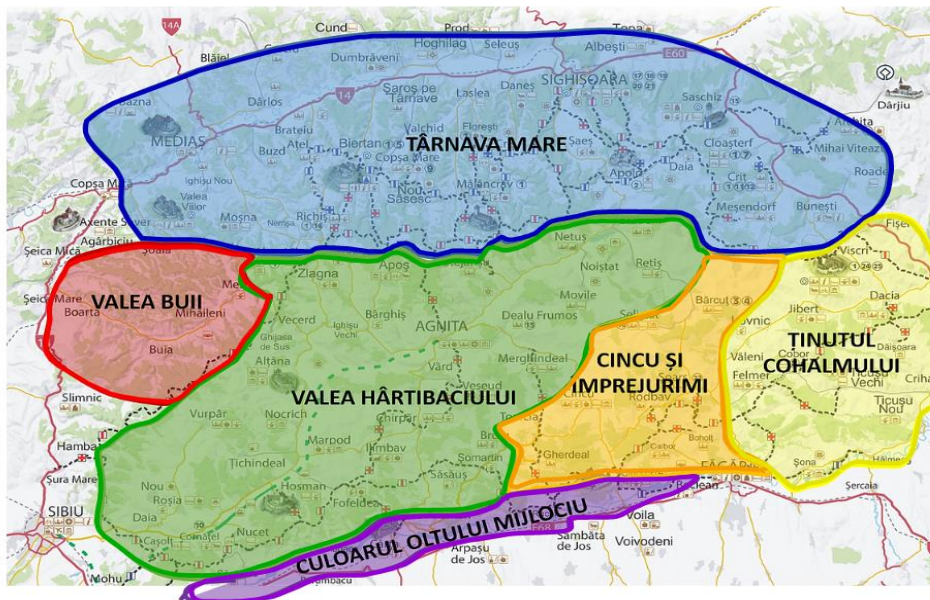
Figure 12: Example of the Interactive Map used on Villages and Fortified Churches Page

There are plenty of places on the website where interactive features like the map displayed in Figure 12 could be implemented. For example, an interactive graphic could be added to the Explore page prompting users to click through to all of the Explore section subpages. A future project could create all of these interactive features, by designing vector art in a software such as Inkscape, which is the free vector art software used for the Villages and Fortified Churches pages, in order to represent the content of a page, and the vector art could be converted into links which route users to different pages. Ideally, graphic assets are created for each link when there is a mouse hovering over it, and when there is not. This enhances the interactive appeal and also provides a better visual indicator to users that the graphic is an interactive feature. By creating these interactive features, the project will increase the user engagement with the website, and thereby have the potential to increase user loyalty.

5.1.3 Location Services

Initially, we intended to use a location API in order to allow users to filter results in a radius around a chosen location. In the end, we chose not to implement this as part of this project

as Google's Maps API has pricing tiers, and without the usage information for the website which will eventually be available through Google Analytics, we were not able to confidently create an estimate of the potential charges that could be incurred due to the use of this API. However, since this feature offers the potential to increase the mapping capability of the website and to make results for places such as accommodations and restaurants more easily searchable for users as the ecotourism network increases, the implementation of distance calculations on the website could offer a significant ease-of-use improvement on the website. Wix offers direct integration of Google Maps API, but other location APIs exist and can be manually implemented on the website Any project considering the implementation of a mapping API would require detailed discussion of the pricing models and capabilities of all relevant APIs before then attempting to implement the chosen API. In the case of Google Maps, much of the potential desired functionality is built in, but with other APIs, requests may have to be manually created in Wix Code in order to obtain the desired features using the API. This project would increase the usability of the website, and thereby encourage loyalty in the users of the website.

5.1.4 Editor X

Wix has a new version of their editor titled Editor X currently in beta testing. In this new editor, Wix aims to give its users more complete control over their website's design, without requiring them to use CSS. It has additional features for testing websites on different screen sizes, and to design more responsive websites. Switching to this editor would potentially allow the destination website to improve aesthetically and be more usable on different screen sizes. One goal of a future project could be to explore the capabilities of the editor and to add any new features it brings to the website. Since the documentation we have created pertains to the current Wix editor, the documentation package would have to be updated to reflect the changes Wix has made in their new Editor X, and assistance could be given to the administrators of the website by leading instruction on how to use the new editor effectively.

5.2 Communication Platform and the Future of Eco-Tourism in Romania

The destination management team for the Transylvanian Highlands expressed a great need for an online communication platform to increase stakeholder communication. In response, we have developed a website to serve as this platform, in order to increase the efficiency with which the destination management team can operate. The website provides methods for stakeholders to become more invested in the official destination website for the Transylvanian Highlands, in hopes of increasing involvement in ecotourism and encouraging the embracing of ecotourism's ideals by members of the communities throughout the region. The platform also presents an aesthetically pleasing and efficient presentation of information that will help promote ecotourism principles. Through this platform, we hope that ecotourism in the Transylvanian Highlands will be able to continue to grow, attracting more supporters in the region and more visitors globally. We hope that with continued success, the efforts of the destination management team will be able to preserve the culture and environment of the region from the destructive pulls of the modern world, and continue sharing that culture and environment with curious tourists.

Chapter 6: Works Cited

Adewumi, I. B., Usui, R., & Funck, C. (2019). Perceptions of multiple stakeholders about environmental issues at a nature-based tourism destination: The case of Yakushima Island, Japan. *Environments*, *6*(8), 93. https://doi.org/10.3390/environments6080093

Anyansi, O. J. (2012). Online marketing strategy guidelines for non-profits: Case study on developing web presence for Guatemalan ecotourism organization. *Worcester Polytechnic Institute.*

Bălteanu D., Dincă A. I., Surugiu, C., Dumitraş, M. Micu, D. & Felciuc M. (2008). Ecotourism and environmental change in the Romanian Carpathians. *Global Environmental Research, 12,* 161-172

Buckley, R. (1994). A framework for ecotourism. *Annals of Tourism Research, 21*(3), 661–665. doi: 10.1016/0160-7383(94)90126-0

Colinele Transilvaniei. (2012). Colinele Transilvaniei. Retrieved from http://site.colinele-transilvaniei.ro/

Gál, T. (2018). Ecological tours as key for sustainable tourism development in Transylvania. *Enlightening Tourism. A Pathmaking Journal*, *8*(1). 26-46.

García-Álvarez, M. T. & Moreno, B. (2018). Environmental performance assessment in the EU: A challenge for the sustainability. *Journal of Cleaner Production, 205*, 266-280. doi:10.1016/j.jclepro.2018.08.284

Gergle, D., Brinck, T. & Wood, S. (1999). Practical usability methods in website design. *Extended Abstracts on Human Factors in Computing Systems,* 110-111, https://doi.org/10.1145/632716.632786

Gullino, P., & Larcher, F. (2013). Integrity in UNESCO World Heritage sites. A comparative study for rural landscapes. *Journal of Cultural Heritage, 15*(5), 389-395. https://doi.org/10.1016/j.culher.2012.10.005

Hall, D. R. (1998). Tourism development and sustainability issues in Central and South-Eastern Europe. *Tourism Management. 19*(5), 423-431.

Horton, L. (2009). Buying up nature: Economic and social impacts of Costa Rica's ecotourism boom. *Latin American Perspectives, 36*, 93-107. https://www.jstor.org/stable/20684646

Iorio, M., & Corsale, A. (2013). Community-based tourism and networking: Viscri, Romania. *Journal of Sustainable Tourism, 22*(2), 234-255.

Kock, E. D., Bilijon, J. V. & Pretorious M. (2009). Usability Evaluation Methods: Mind the gaps. *SAICSIT '09: Proceedings of the 2009 Annual Research Conference of the South*

African Institute of Computer Science and Information Technologists, 122-131. https://doi.org/10.1145/1632149.1632166

Kontogeorgopoulos, N. (2004). Ecotourism and mass tourism in Southern Thailand: Spatial interdependence, structural connections, and staged authenticity. *GeoJournal, 66*, 1-11. https://www.jstor.org/stable/41147909

Light, D., & Andone, D. (1996). The Changing Geography of Romanian Tourism. *Geography, 81*(3), 193-203. www.jstor.org/stable/40572792

Loomis A., Gasper P., Miller S., & Shuimiao, G. (2012). Prospects of Ecotourism in Hong Kong: A Case Study on Tung Ping Chau. *Worcester Polytechnic Institute.*

Luna-Nevarez, C., & Hyman, M. R. (2012). Common practices in destination website design. *Journal of Destination Marketing & Management, 1*, 94-106. doi:10.1016/j.jdmm.2012.08.002

Plesoianu, D., Grecu, E., & Popescu, A. (2018). The heritage of traditions tourism facilities in Transylvania, Romania. *Scientific Papers Series Management, Economic Engineering in Agricultural and Rural Development*, *18*(1), 325-336.

Ploaie, G., & Turnock, D. (1999). Conservation and rural change in Valcea County. *Geojournal, 46,* 289-303.

Roşca, A., & Mihăilă, R. (2019). Ecodestinations: A model of leadership and sustainable local development [PDF file]. Retrieved from https://www.rafonline.org/wp-content/uploads/2019/09/Ecodestinations-2019.pdf

Site123 (2020). 10 Best website builders. Retrieved from https://websitesetup.org/website-builders/

Ştefan, P., Gheorghe, S., & Cutaş C. (2014). New approaches concerning the development of the ecotourism in Romania. *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, 14*(2)*,* 297-302.

Tan, G. K., & Kwok, K. W. (2006). An empirical study of web browsing behavior: Towards an effective website design. *Electronic Commerce Research Applications, 5*, 261-271. doi:10.1015/j.elerap.2006.05.007

Tarafdar, M. & Zhang, J. (2008). Determinants of reach and loyalty – A study of website performance and implications for website design. *The Journal of Computer Information Systems, 48*(2), 16-24.

Todor, A. (2018). Willing to pay to save the planet? Evaluating support for increased spending on sustainable development and environmentally friendly policies in five countries. *PLoS ONE, 13*(11). doi:10.1371/journal.pone.0207862

Transylvanian Highlands. (2017). The last authentic medieval landscape in Europe.

West, R., & Leskovec, J. (2012). Human Wayfinding in Information Networks, Proceedings from WWW '12: *The 21st International Conference on World Wide Web.* Lyon, France.

Wondirad, A., Tolkach, D., & King, B. (2019). Stakeholder collaboration as a major factor for sustainable ecotourism development in developing countries. *Tourism Management, 78.*

Wordpress (2020). Free website builder. Retrieved from https://www.wordpress.com/

Wix (2020). Free website builder. Retrieved from https://www.wix.com/

Appendix A1: Transylvanian Highlands Ecotourism Initiative Plan

The Romanian-American Foundation and the Romanian Environmental Partnership Foundation began each of the ecotourism initiatives started along with the Transylvanian Highlands with a clear plan. This plan for the structure of the seven ecotourism initiatives is illustrated in Figure 13, which demonstrates each initiative's relationship to the sponsoring organizations. These initiatives each serve different communities and regions, but all serve the same overall purpose—to contribute positively to the communities they serve and to preserve the culture and environment of the regions they act in.
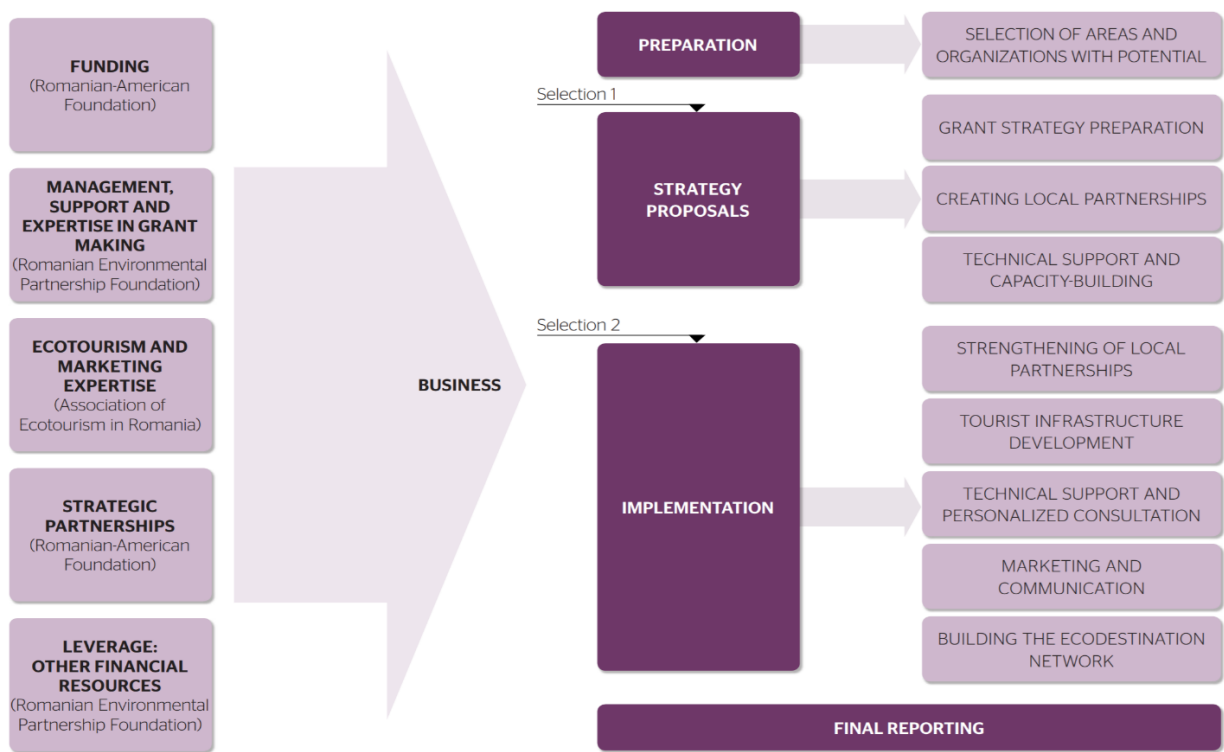
Figure 13: Ecodestination Development Program model (Roşca and Mihăilă, 2019)

Appendix A2: Transylvanian Highlands Ecotourism Initiative Partnering Organizations

This list provides the information for the partnering organizations that formed the Transylvanian Highlands tourism board in the spirit of collaboration and promoting ecotourism concepts.

List of Transylvanian Highlands Ecotourism Initiative Partnering Organizations

1. Mioritics Association
2. Sibiu County Tourism Association
3. WWF Romania
4. ADEPT Transilvania Foundation
5. Mihai Eminescu Trust Foundation (MET)
6. Local Action Group Dealurile Târnavelor
7. Local Action Group Microregiunea Hârtibaciu
8. Local Action Group Podişul Mediaşului
9. Local Action Group Asociaţia Transilvania Braşov Nord
10. Evangelical Church C.A. Romania
11. Leuphana University Lüneburg (Germany)
12. Monumentum Association

Appendix A3: Transylvanian Highlands Ecotourism Initiative Stakeholders

Table 2 displays the major categories of stakeholders that will be used to define the different levels of information necessary for each individual stakeholder type to see.

Table 2: Transylvanian Highlands Stakeholders

Transylvanian Highlands Ecotourism Initiative Stakeholders	
Partnering Organizations	List in Appendix A2
Tour Operators and Guides	
Local Businesses-Owners	Hotels & Lodgings Restaurants Businesses & Merchants
Government Bodies	

Appendix B: World Heritage Sites

Figure 14 lists the criteria that must be met for a location to become categorized as a World Heritage site.

Inscription criteria for cultural heritage	
(i)	To represent a masterpiece of human creative genius
(ii)	To exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design
(iii)	To bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared
(iv)	To be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history
(v)	To be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change
(vi)	To be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance (The Committee considers that this criterion should preferably be used in conjunction with other criteria)

Figure 14: Definition of a World Heritage Site (Gullino & Larcher, 2013)

Appendix C: Usability Testing

Usability Testing as it relates to website design is the process of evaluating the functionality of the different features and structure a website has to offer. One specific way of evaluating this is heuristic evaluation, running the program as a user and trying to find problems. This type of evaluation has evolved due to the need to develop a less resource-intensive usability testing method (Kock, Bilijon, and Pretorious, 2009). These tests need to measure the ease of use of the interface. In doing so the researcher must consider effectiveness, efficiency, and happiness of the users. For this specific project, the following adapted Checklist from Kock, Bilijon, and Pretorius will be used in focus groups to evaluate each stage of the web site. Each lettered point will be rated on a scale from 1(very bad) to 5(very good) with the request that any 1s or 2s be explained.

Survey Preamble:

The purpose of this survey is to analyze the usability and functionality of the new website design for the Colinele Transilvaniei ecotourism initiative. It is part of the project of three Worcester Polytechnic Institute. The information from this survey will be used to develop and correct issues with the current iteration of the website.

Participation in this survey is completely voluntary and you may stop at any time. Please remember that your responses will be kept anonymous and no names or identifying information will appear in any project reports or publications. This is a cooperative project between WPI and Colinele Transilvaniei to enhance ecotourism in the Transylvanian Highlands.

1. Software-User Interaction – informs user of system status and task completion
2. Learnability – supports timely and efficient learning of software features
3. Cognition Facilitation – supports cognition limitations of user
4. User Control and Software Flexibility – respond to user action and adaptivity
5. System-Real World Match – match users' expectations, familiarization, fit intended user group.
6. Graphic Design - graphical elements, colors, aesthetics
7. Navigation and Exiting - facilitate software exploration and provide outlets to terminate actions
8. Consistency – provide standard and reliable terminology, actions and layouts
9. Error Management– prevents, identifies, diagnoses and offers corrective solutions.

Appendix D: Gantt Chart

Figure 15 is a Gantt chart displaying our high-level day-by-day plan for the seven-week project, including the interviews, surveys, and website iterations.

	Week 1					Week 2					Week 3					Week 4				
Activity	16-Mar	17-Mar	18-Mar	19-Mar	20-Mar	23-Mar	24-Mar	25-Mar	26-Mar	27-Mar	30-Mar	31-Mar	1-Apr	2-Apr	3-Apr	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr
Adaptation to Online and Orientation	■	■	■	■	■															
Interviews						■	■	■	■	■										
Proposal of Options														■	■	■	■			
Initial Implementation																		■	■	■

	Week 5					Week 6					Week 7					Week 8				
Activity	13-Apr	14-Apr	15-Apr	16-Apr	17-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	27-Apr	28-Apr	29-Apr	30-Apr	1-May	4-May	5-May	6-May	7-May	8-May
Initial Implementation	■	■	■	■	■															
Formal Testing									■	■	■	■	■							
Testing Fixes and Add-ons									■	■	■	■	■	■	■	■	■	■		
Documentation						■	■	■	■	■	■	■	■	■	■	■	■	■		
Final Report											■	■	■	■	■	■	■	■		

Figure 15: Project Timeline Gantt Chart

Appendix E1: Transylvanian Highlands Destination Management Team Interview

The purpose of this interview is to inquire about the state and needs of the Colinele Transilvaniei ecotourism initiative regarding the creation of a new website design. It is part of the project of three Worcester Polytechnic Institute students. The information from this interview will be used to develop and correct issues with the current iteration of the website.

> Participation in this interview is completely voluntary and you may stop at any time. Please remember that your responses will be kept anonymous and no names or identifying information will appear in any project reports or publications. This is a cooperative project between WPI and Colinele Transilvaniei to enhance the ecotourism industry in the Transylvania Highlands.

Transylvanian Highlands Ecotourism Initiative Interview Questions

1. Would you be willing to answer some questions for us? All answers will be kept confidential. We expect this interview to take 30 minutes at the most.
2. What do you believe are the ecotourism initiative's current strengths?
3. What do you believe are the initiative's current weaknesses?
4. How would you describe the initiative's web presence?
   a. What about the initiative's online presence works well?
   b. What about the initiative's online presence does not work well?
   c. How do you think the initiative's web presence is related to their effectiveness in the region?
5. Does the initiative use other channels of communication to enhance its effectiveness? If so, what are those?
   a. How do you use each?
   b. What audiences are each of these channels designed for?
6. How do you hope the website will improve the initiative's operations?
7. What groups do you envision using this website?
8. How do you envision each of these users interacting with the website?
9. What features would you like to see on the website?
   a. Examples of features: Booking, Product listings, Calendar, Membership, Blog, Newsletters, Content shareable on social media, Social media links, Search bar, Contact form, Comments/forum, Site analytics, Search engine optimization
10. What content would you like to see on the website?
    a. Examples of content: Destination description, accommodation information, attraction information, restaurant information, testimonials, maps, news, frequently asked questions
11. What does your current website have that you consider a necessity on this website?
12. What does your current website lack that you consider a necessity on this website?

Appendix E2: Transylvanian Highlands Tourism Board Interview

The purpose of this interview is to inquire about the state and needs of the Colinele Transilvaniei ecotourism initiative regarding the creation of a new website design. It is part of the project of three Worcester Polytechnic Institute students. The information from this interview will be used to develop and correct issues with the current iteration of the website.

> Participation in this interview is completely voluntary and you may stop at any time. Please remember that your responses will be kept anonymous and no names or identifying information will appear in any project reports or publications. This is a cooperative project between WPI and Colinele Transilvaniei to enhance the ecotourism industry in the Transylvania Highlands.

Transylvanian Highlands Tourism Board Interview Questions

1. Would you be willing to answer some questions for us? All answers will be kept confidential. We expect this interview to take 30 minutes at the most.
2. What is your organization's role in the Transylvanian Highlands?
3. As a member of the Tourism Board what impact does your organization have on the region?
   a. How does your organization's relationship with the initiative benefit your organization?
   b. How does your organization's relationship with the initiative benefit the initiative?
4. Does your organization have any relationships with the other partnering organizations independent of the initiative?
   a. What organizations are those?
   b. What is the nature of the relationship?
   c. How does your organization benefit from the relationship?
5. How does your organization communicate with the managers of the initiative?
   a. What information does your organization communicate with them?
   b. How often does your organization communicate with them?
6. Would you and your organization be interested in a communication platform between all the region's stakeholders in the form of a destination website?
   a. What features would you like to see on the website?
   b. What content would you like to see on the website?
7. How do you and your colleagues use the internet for work on a daily basis?

Appendix E3: Local Business Survey

The purpose of this survey is to inquire about the state and needs of local business owners regarding the creation of a new website design for the Colinele Transilvaniei ecotourism initiative. It is part of the project of three Worcester Polytechnic Institute students. The information from this survey will be used to develop and correct issues with the current iteration of the website.

Participation in this survey is completely voluntary and you may stop at any time. Please remember that your responses will be kept anonymous and no names or identifying information will appear in any project reports or publications. This is a cooperative project between WPI and Colinele Transilvaniei to enhance the ecotourism industry in the Transylvania Highlands.

    a. Options: Agree
2. Which marketing channel do you use to promote your business to potential tourists/customers?
    a. Options (check all that apply): Have a website, Listed on other website, Listed in tour guides, Listed in local directories, Other
3. To what extent is the internet a part of the regular operation of your business?
    a. Options: Daily, Weekly, Monthly, Other
    b. Would you like it to be a bigger part?
        i. Options: Yes/No
4. Are you equipped to perform transactions online?
    a. Options: Yes/No
5. Given the option would you be willing / interested to conduct business (sell products, allow booking, etc.) or advertise your business through Colinele Transilvaniei's eco-destination website?
    a. Options: Conduct business, Advertise, Both, Neither
    b. If you are interested in the first option, are there any features that you would find essential on a website that you will directly collaborate with?
        i. Options (check all that apply): Booking, Product listing, Calendar, Newsletters, Content shareable on social media, Comments/forum, Other
6. Please rate on a scale of 1 to 5, how much you would value the following features and content on a website for the Transylvanian Highlands:
    a. Calendar of events
    b. Calendar of events filtered by location
    c. Comments/forum
    d. Region / destination / community news
    e. Content shareable on social media
    f. Search bar
    g. Information about your business
    h. Maps
7. Suggested other features for a destination website, such as the Transylvanian Highlands

Appendix F1: Transylvanian Highlands Destination Management Team Interview Results

Following interviews with members of the Transylvanian Highlands destination management team, the responses received were codified based on positive and negative responses to specific features and content items. The responses to potential content are plotted in Figure 16, whereas the responses to potential features are plotted in Figure 17.
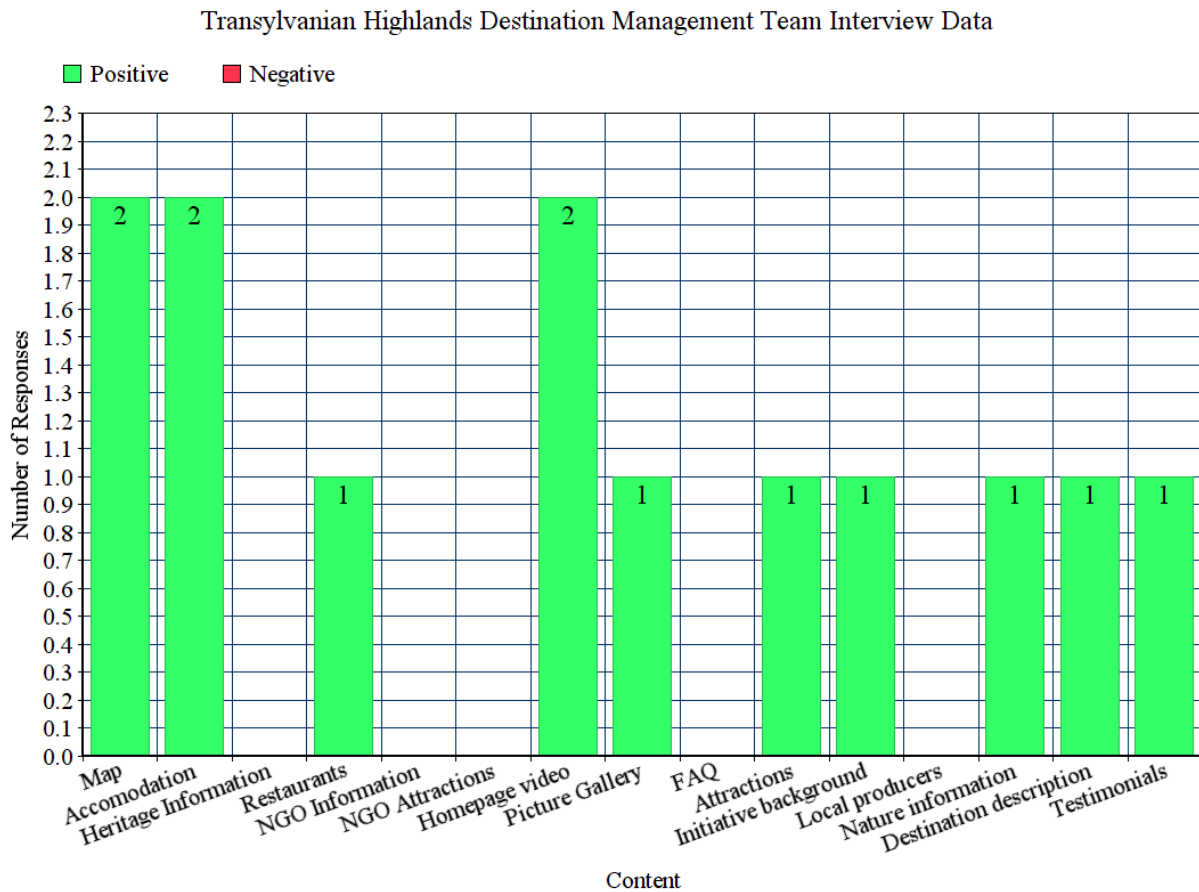
Figure 16: Destination Management Team Interview Content Data
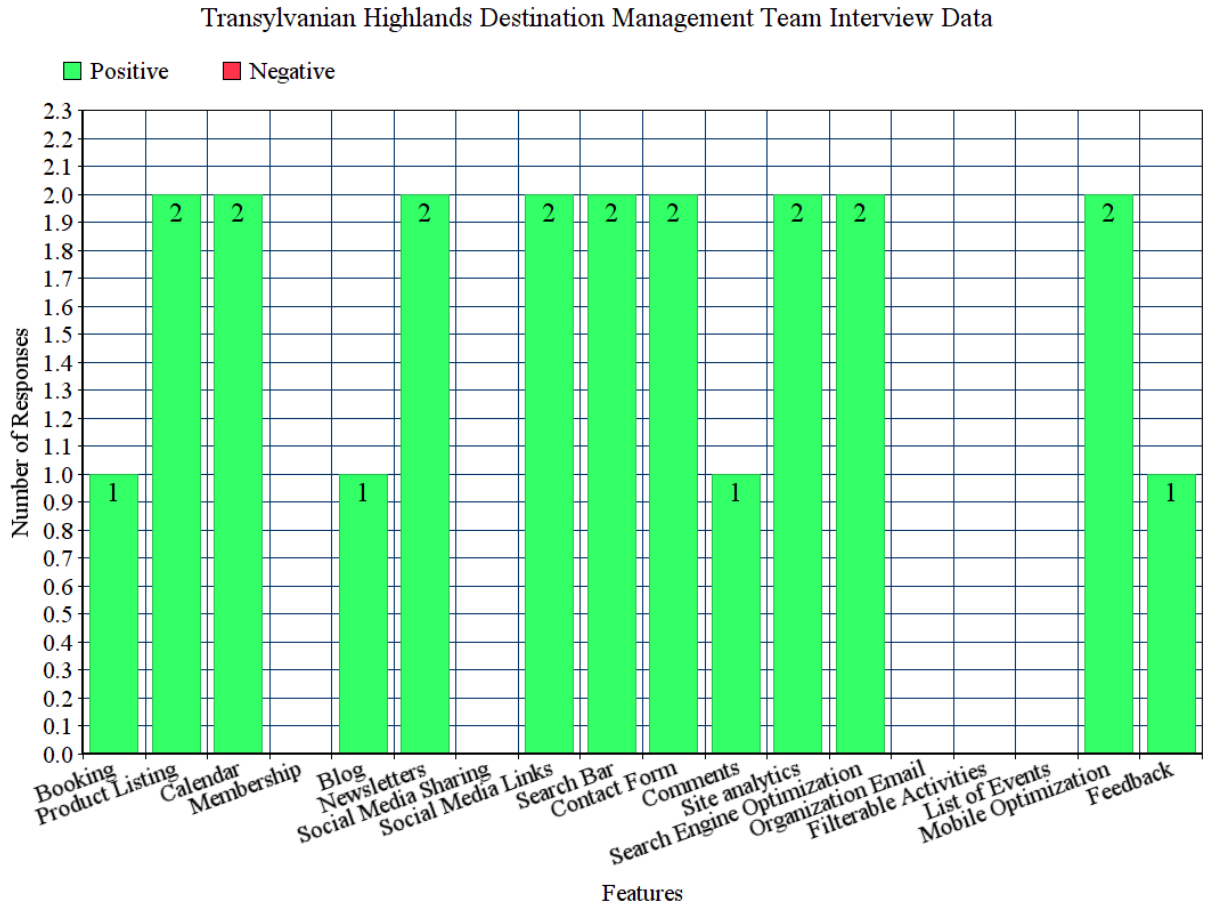
Figure 17: Destination Management Team Interview Feature Data

Appendix F2: Transylvanian Highlands Tourism Board Interview Results

Following interviews with members of the Transylvanian Highlands destination management team, the responses received were codified based on positive and negative responses to specific features and content items. The responses to potential content items are plotted in Figure 18, whereas the responses to potential features are plotted in Figure 19.

Figure 18: Tourism Board Interview Content Data
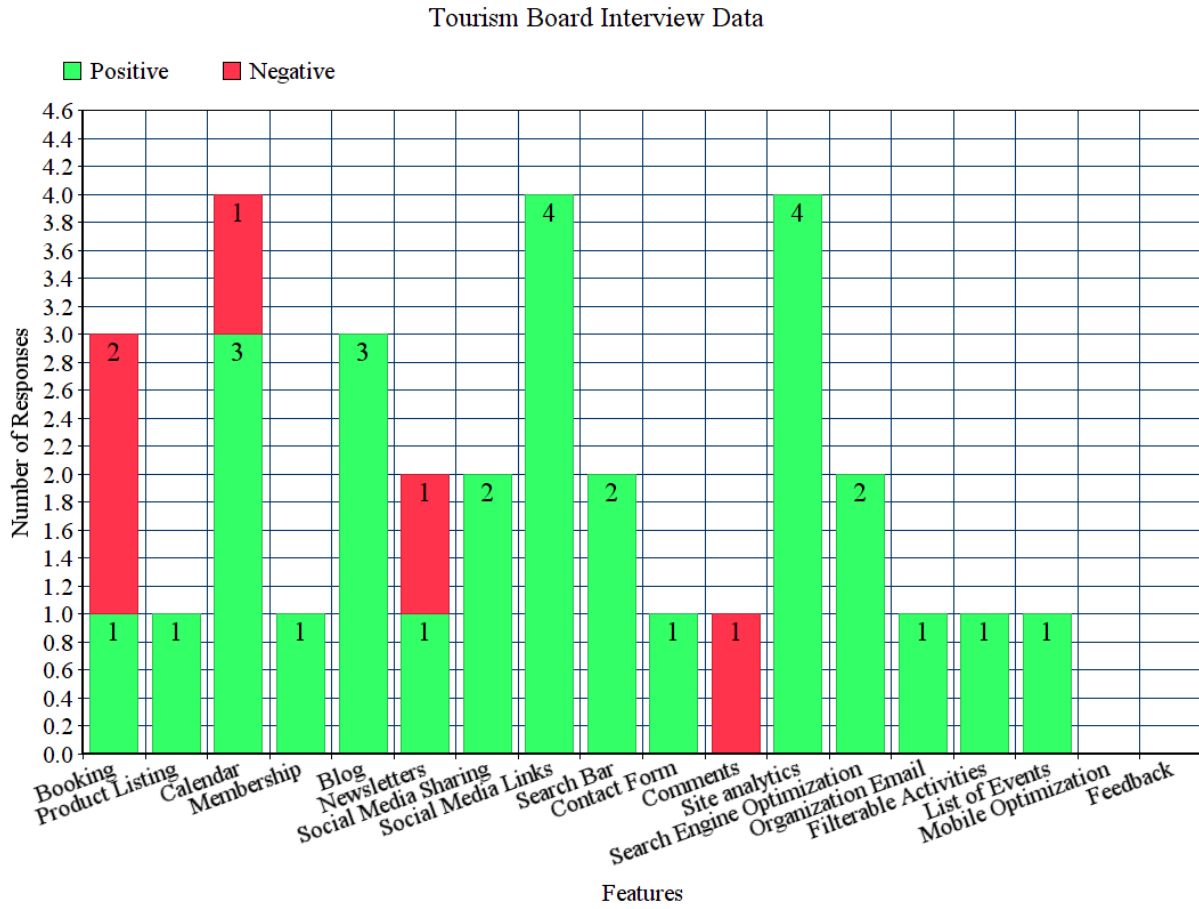
Figure 19: Tourism Board Interview Feature Data

Appendix F3: Local Business Survey Results

After gathering responses to our survey of local business owners, we were able to compile their responses into a series of charts to assess commonalities and trends. These graphs can be found in Figures 20 - 26.
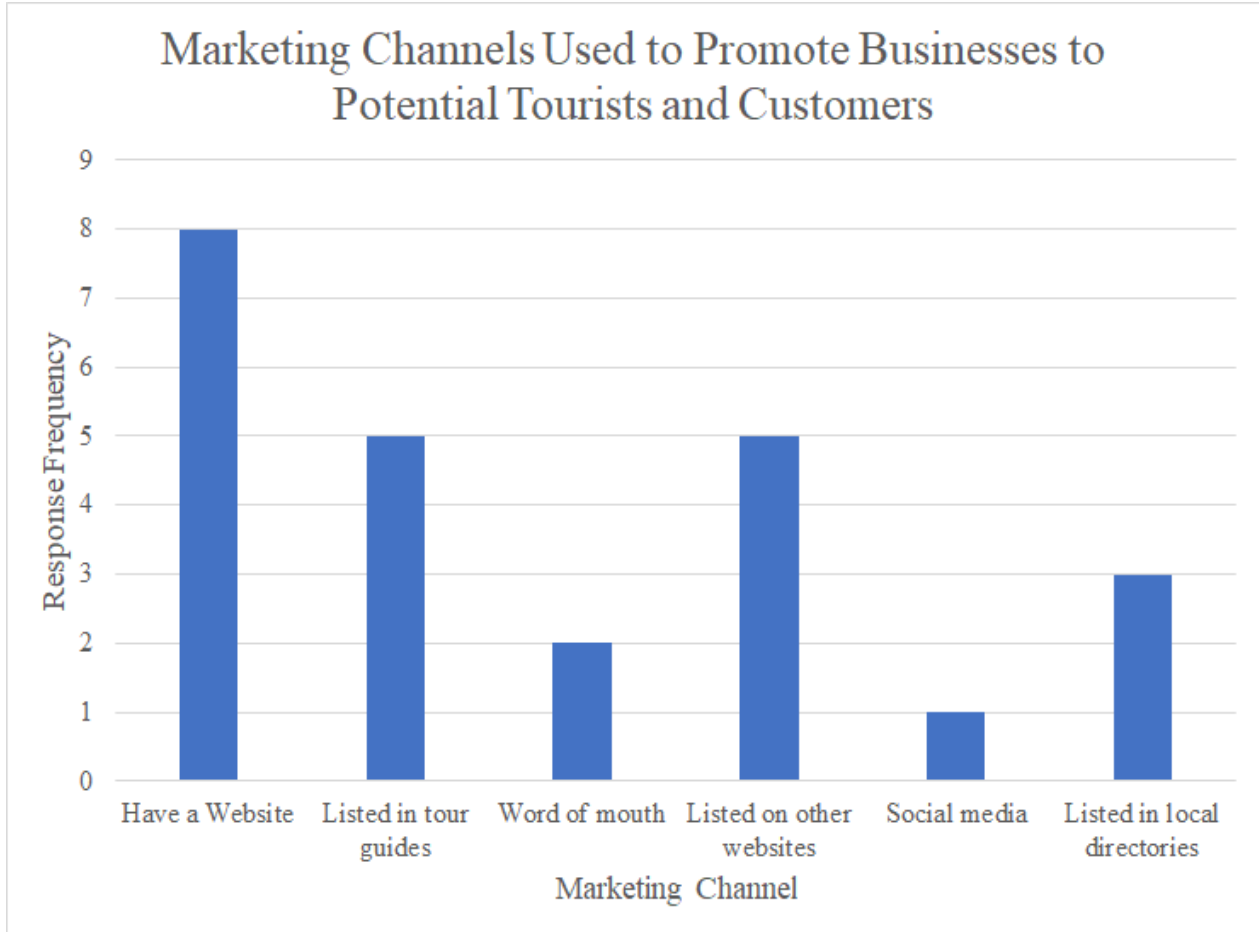
Figure 20: Local Business Survey Marketing Channel Data
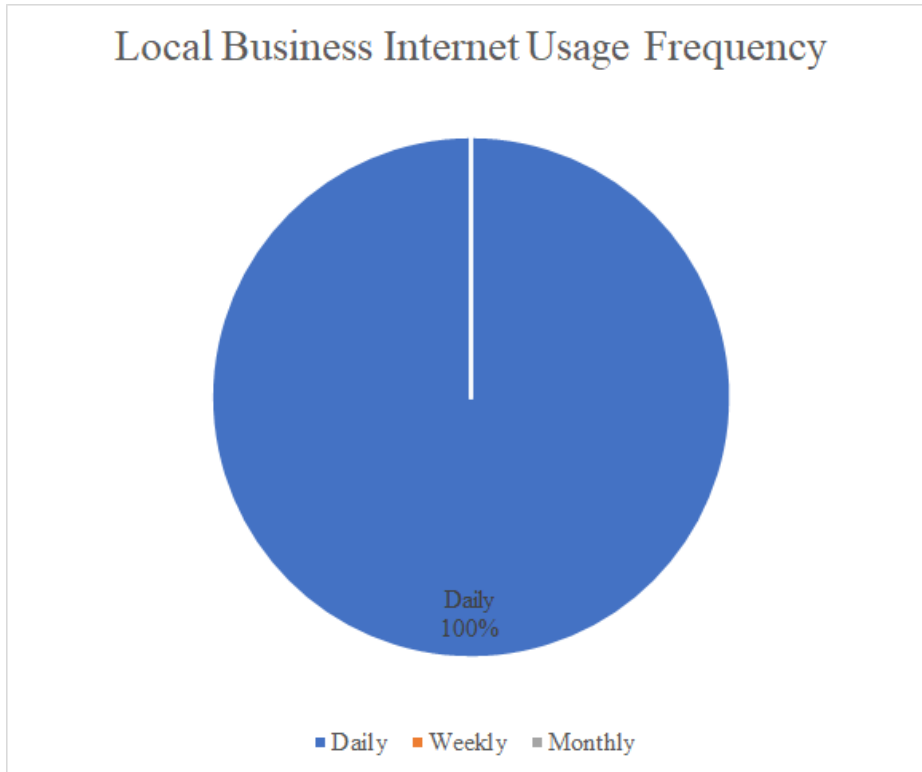
Figure 21: Local Business Survey Internet Usage Frequency Data
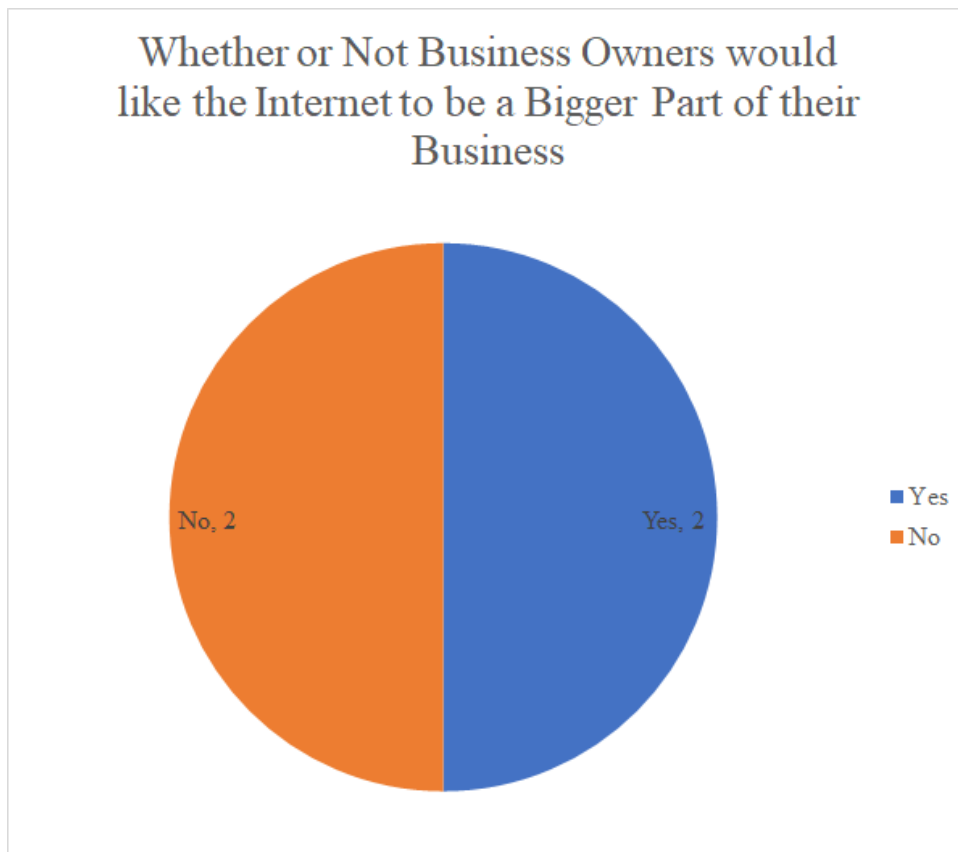
Figure 22: Local Business Survey to Increase Internet Usage
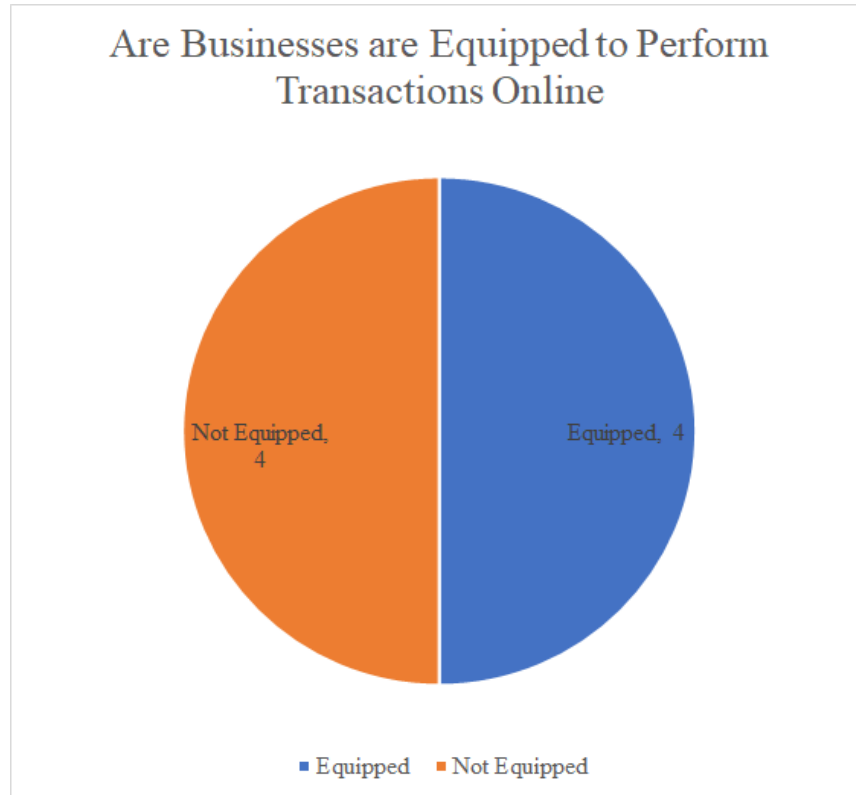
Figure 23: Local Business Survey Inquiry into Online Transaction Capability
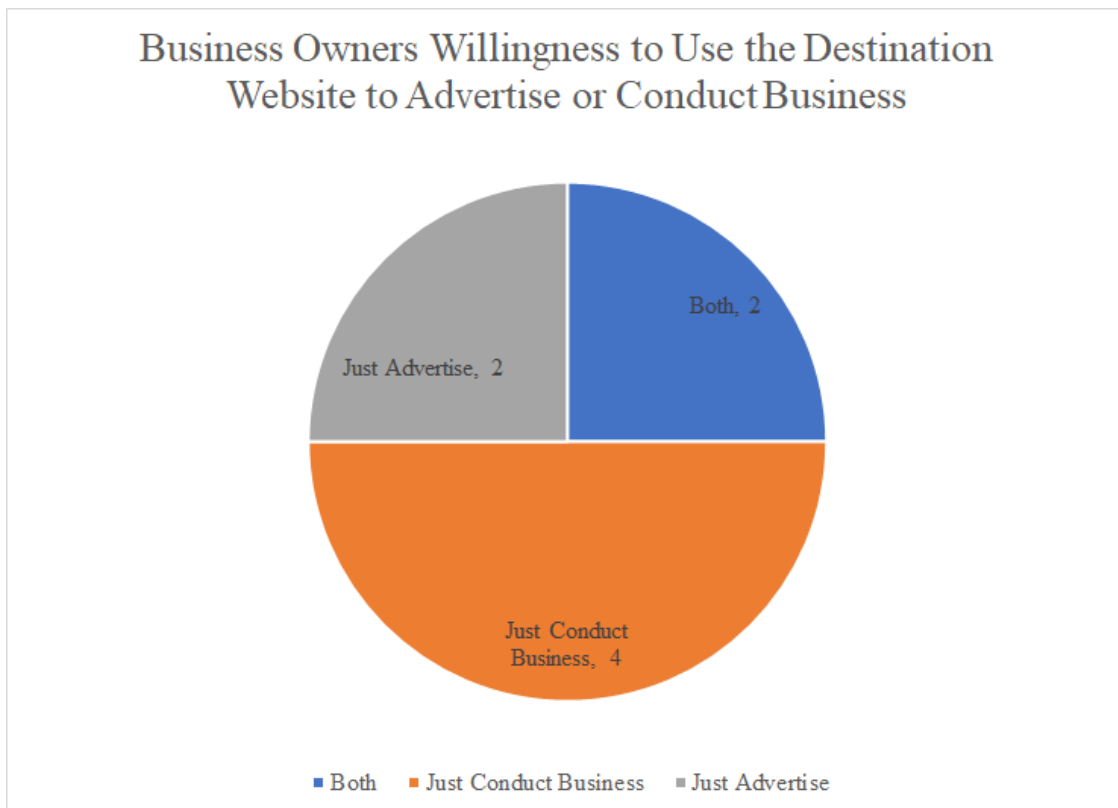
Figure 24: Business Survey Willingness to Utilize Destination Website
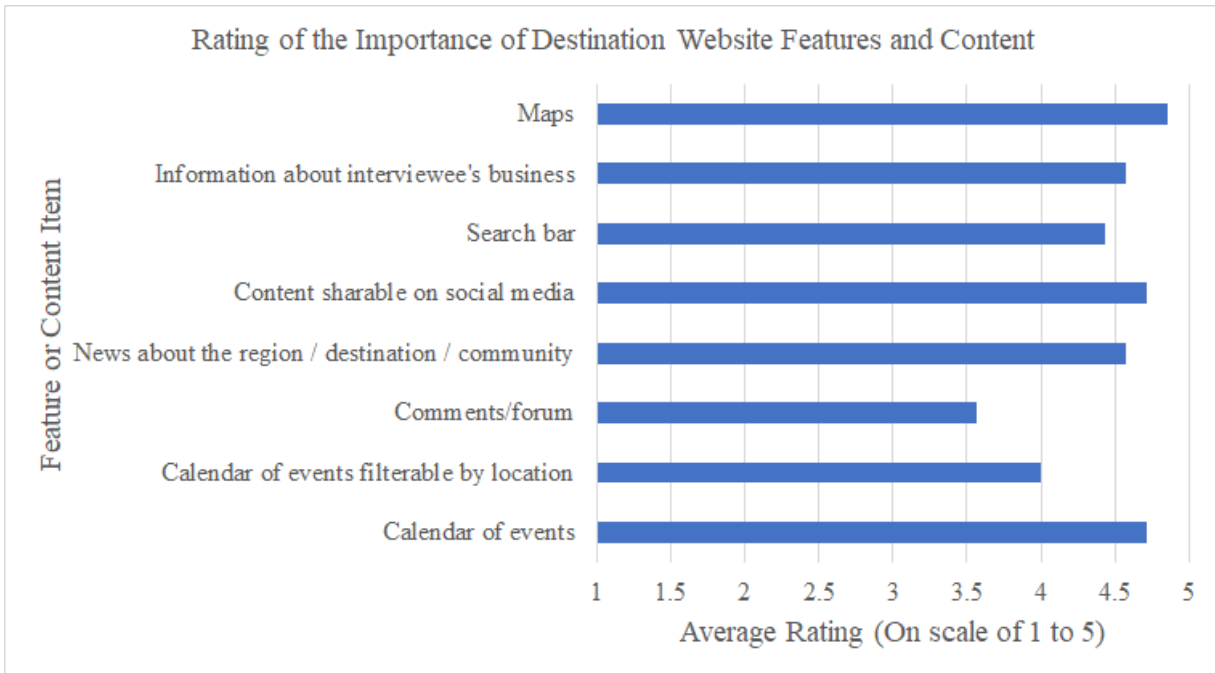
Figure 25: Business Survey Essential Content Data
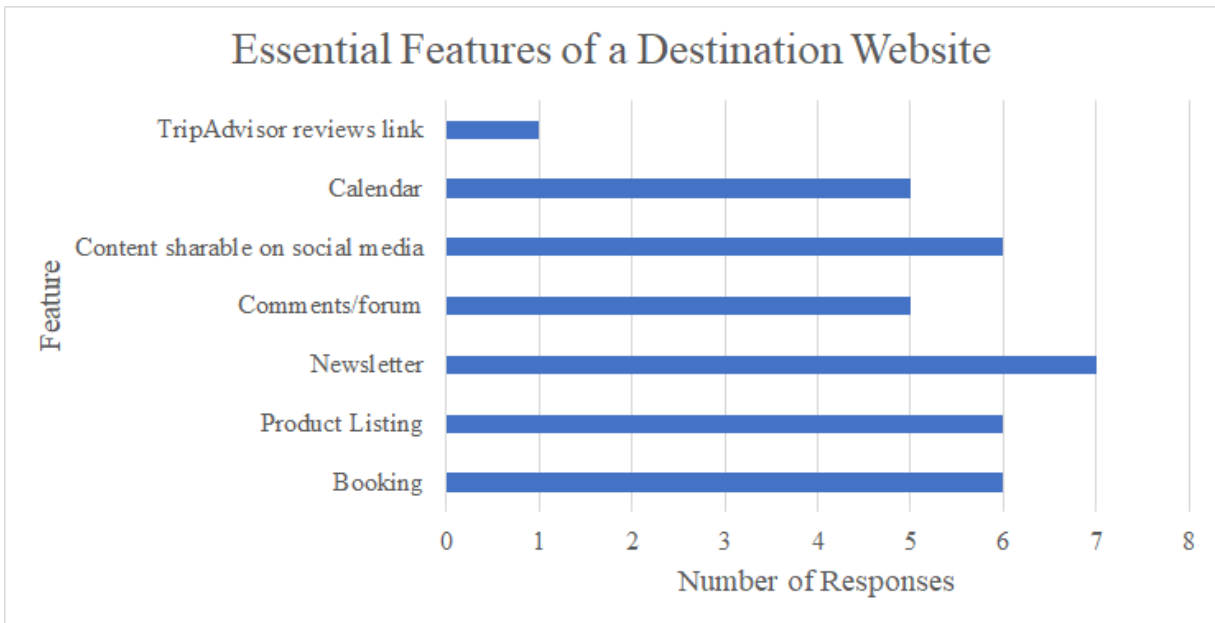
Figure 26: Business Survey Essential Features Data

Appendix G: Testing Results

After conducting the testing of the website, responses to the survey were displayed graphically to assess general opinions. These charts can be seen in Figures 27-35. For most questions, respondents also provided reasoning for responses that were less than 5. These responses are listed below corresponding figures.

1.) Does the website make clear what is going on each time you try to do something?
6 responses
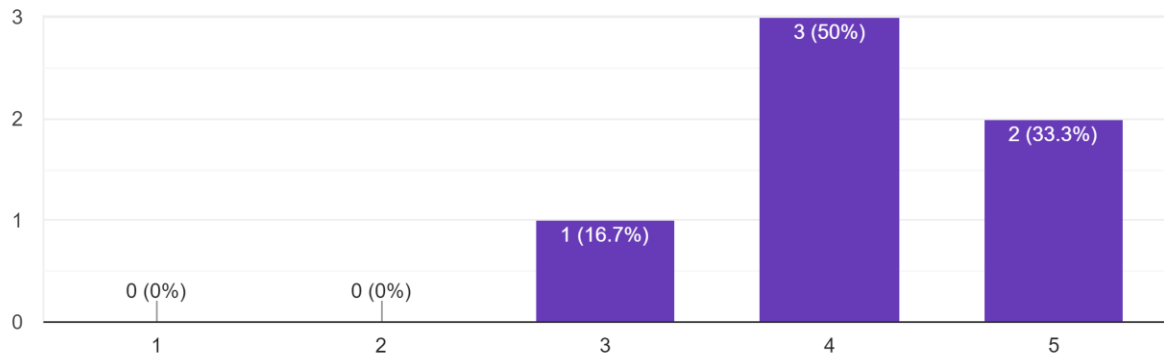
Figure 27: Heuristic 1 Testing Results

Reasons for evaluations less than 5:
- Some of the buttons don't work. Some of the items in the navigation menu lead to a 404 page
- There are some functionalities that are still slow
- It was difficult to see where is my added event
- Broken links

2.) How well does the website communicate in the desired language?

6 responses
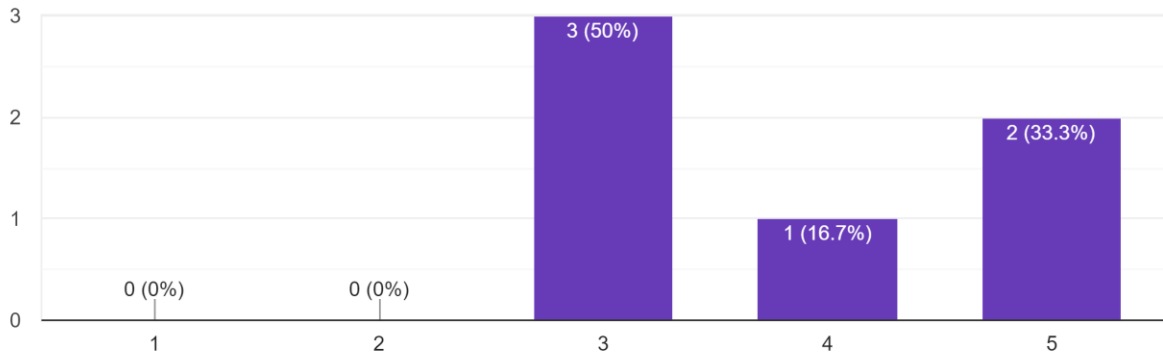
Figure 28: Heuristic 2 Testing Results

Reasons for evaluations less than 5:
- The footer is in English on both versions of the website, Local Contacts is partially in Romanian on the English version. Some of the English translations are questionable. Dates for events also show in the wrong language (in English on both versions of Featured Events, and in Romanian on both versions of Events page). Button text in Protected Areas item page is also in English. I am not seeing a social media bar in English. Events that have been submitted but have not been translated to English in the database still show on the Events page and are just missing necessary information (name, description).
- There are some misinterpretations of words and phrases when going from one language to another
- Not all the text are translated to Romanian language - see footer page
- Multilingual Glitches

3.) If you mistakenly enter the wrong page on the site while exploring, How easy was it to find your way back?

6 responses
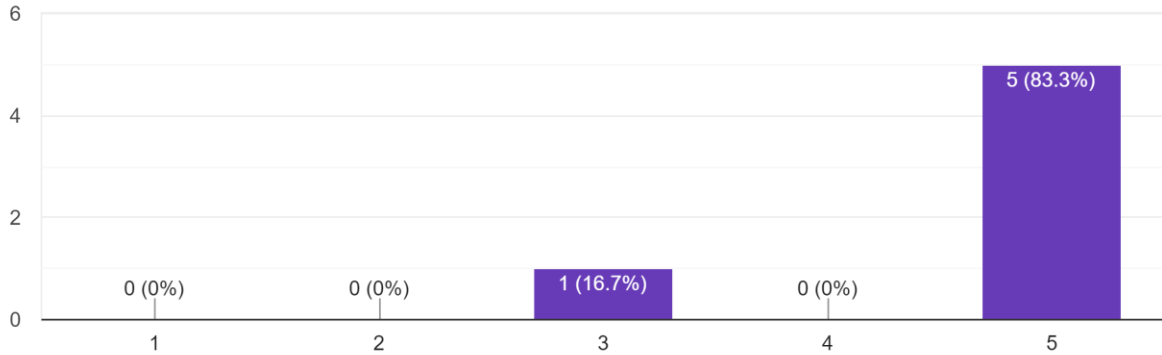
Figure 29: Heuristic 3 Testing Results

Reasons for evaluations less than 5:
- The top of the menu does not drop when scrolling the page - the main categories like discover, explore, plan your trip....

4.)Is there a Consistent and easy to follow site structure and vocabulary conventions throughout the website?

6 responses
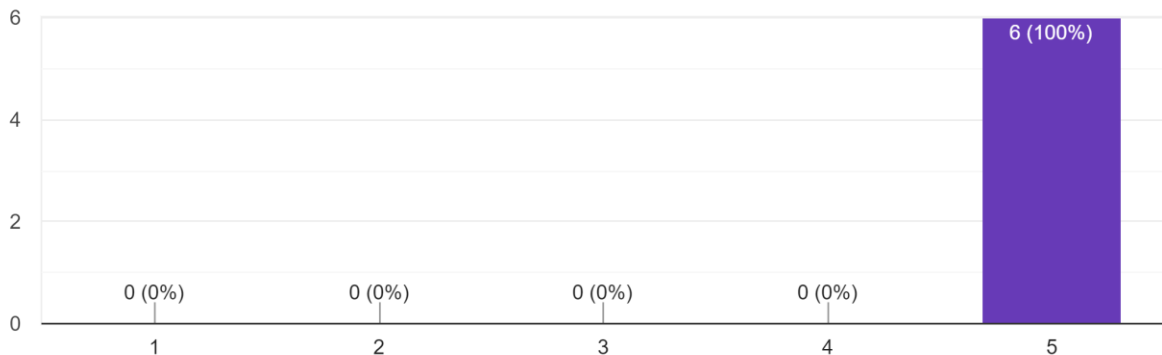
Figure 30: Heuristic 4 Testing Results

5.)How well does the sit avoid errors?(No errors = 5)

6 responses
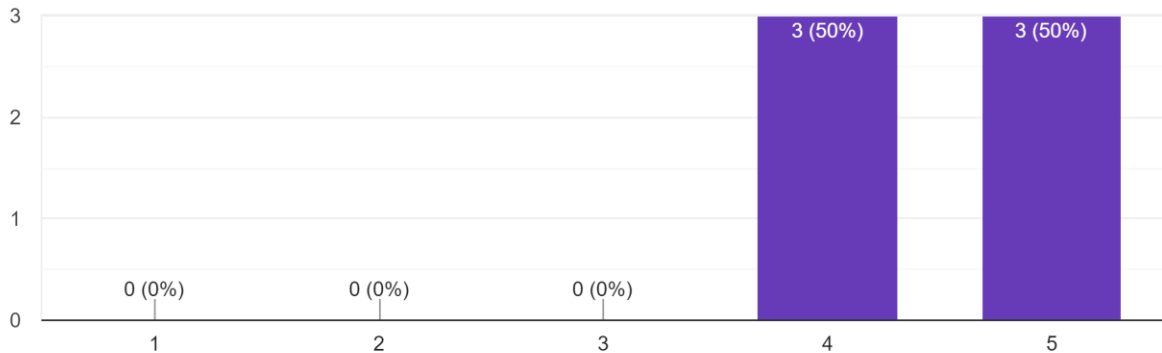
Figure 31: Heuristic 5 Testing Results

Reasons for evaluations less than 5:
- Errors in trying to click on buttons that are not connected correctly.
- I am concerned about the response time - I have also noticed some issues (not consistent) when loading a page, not all clickable menus and link were active.
- Need to remember to sync databases

6.) How well does this website avoid the need for a "Learning Curve"

6 responses
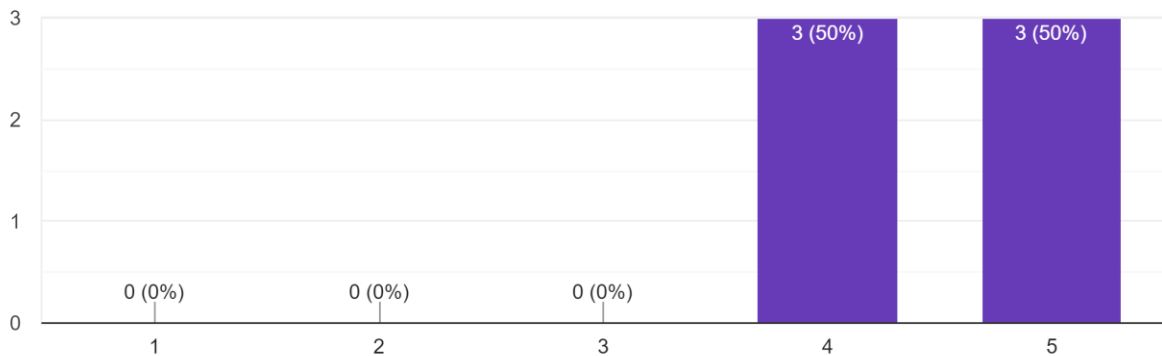
Figure 32: Heuristic 6 Testing Results

Reasons for evaluations less than 5:
- The structure for accessing forms (events, recommended changes) is confusing, without much in the way of instruction on how to fill them out.

7.)In addition, how well does the website allow experienced users to take advantage of shortcuts?
6 responses
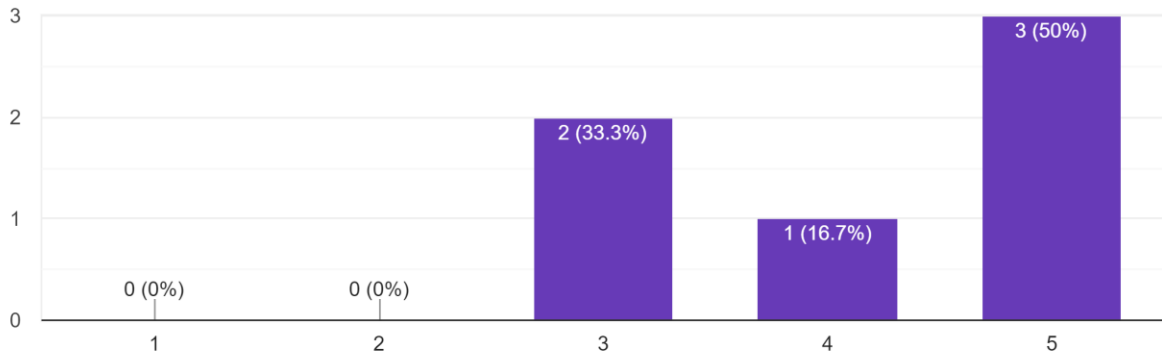
Figure 33: Heuristic 7 Testing Results

Reasons for evaluations less than 5:
- I have 0 idea what the search bar can find
- Not the case, I think

8.) How efficiently does this website display information?
6 responses
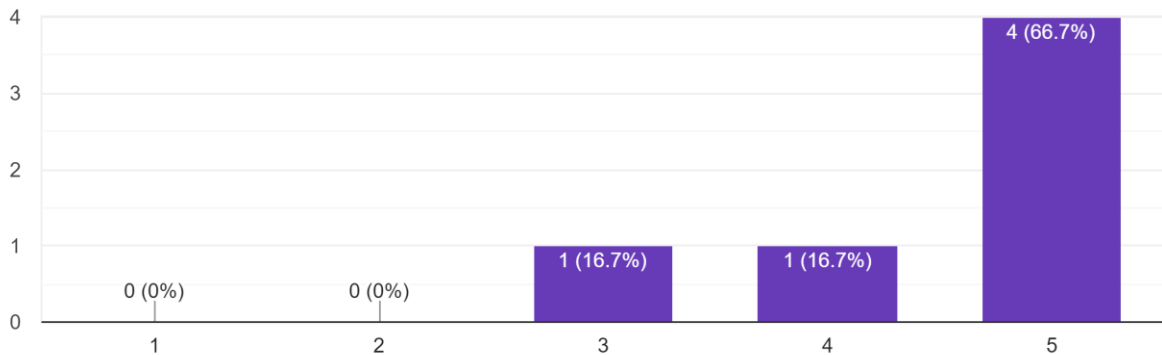
Figure 34: Heuristic 8 Testing Results

Reasons for evaluations less than 5:
- There is still work to be done - fine tuning to display everything properly.
- The format of all pages are not the same, text fonts size, and picture

9.) If you encountered any error messages, how well did the error messages convey why the error occurred?

6 responses
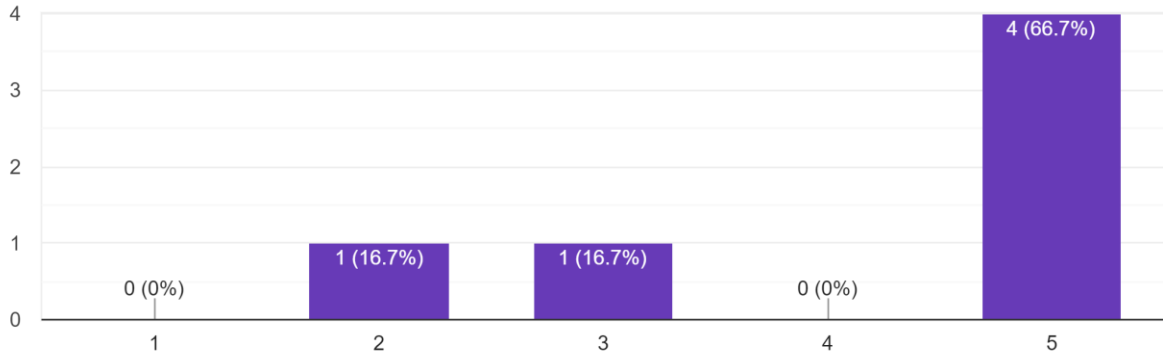
Figure 35: Heuristic 9 Testing Results

Reasons for evaluations less than 5:
- On the events page, I didn't fill in "Type of Event" which turns out to be required, and the red outline of the field was somewhat visible, but the message just said "An Error Occurred, try again later"
- Only saw error 405 for unsynced databases but they don't tell you this

Appendix H: Prioritized List of Features

The following list was assembled to determine the priorities in developing the destination website based on both interview and survey responses, and our own study of the best practices of web design.

1. Must have a consistent graphical presentation
2. Must rely primarily on images rather than text
3. Site analytics
4. SEO
5. Must have multilingual support
6. Events/Calendar
7. Must have map
8. Should have a descriptive title
9. Should not have more than "two scroll bars" for pages with important information (in particular, homepage)
10. Should have accurate and at least general information about accommodations, local businesses, eating, and trails
11. Membership
12. Newsletter
13. Blog
14. Should have sitemap
15. Social media links
16. Contact form
17. Organizational emails
18. Product listing

Appendix I: Destination Website Manual

The following is the documentation package that was created in order to ensure that the Transylvanian Highlands destination management team could continue to maintain and upgrade the website that was created as a part of this project. The document include written descriptions, images of the editing interface in order to assure understanding, and code snippets, both of template code, and the actual code being used on the website.

HOW TO USE WIX: A MANUAL FOR CREATING AND UPDATING A DESTINATION WEBSITE

T. Cooper, T. Saddler, M. Nascimento

Table of Contents

Table of Figures

Chapter 1: Basic Wix Usage

This chapter will focus on the basic parts of Wix from adding text boxes to importing images.

1.1 Adding Items to a page

Wix offers many premade items that can be added to any page on your website. To add an item simply enter the website editor. Click the "+" on the left-hand side of the screen as seen in Figure 1 and select the item you wish to add to the page.
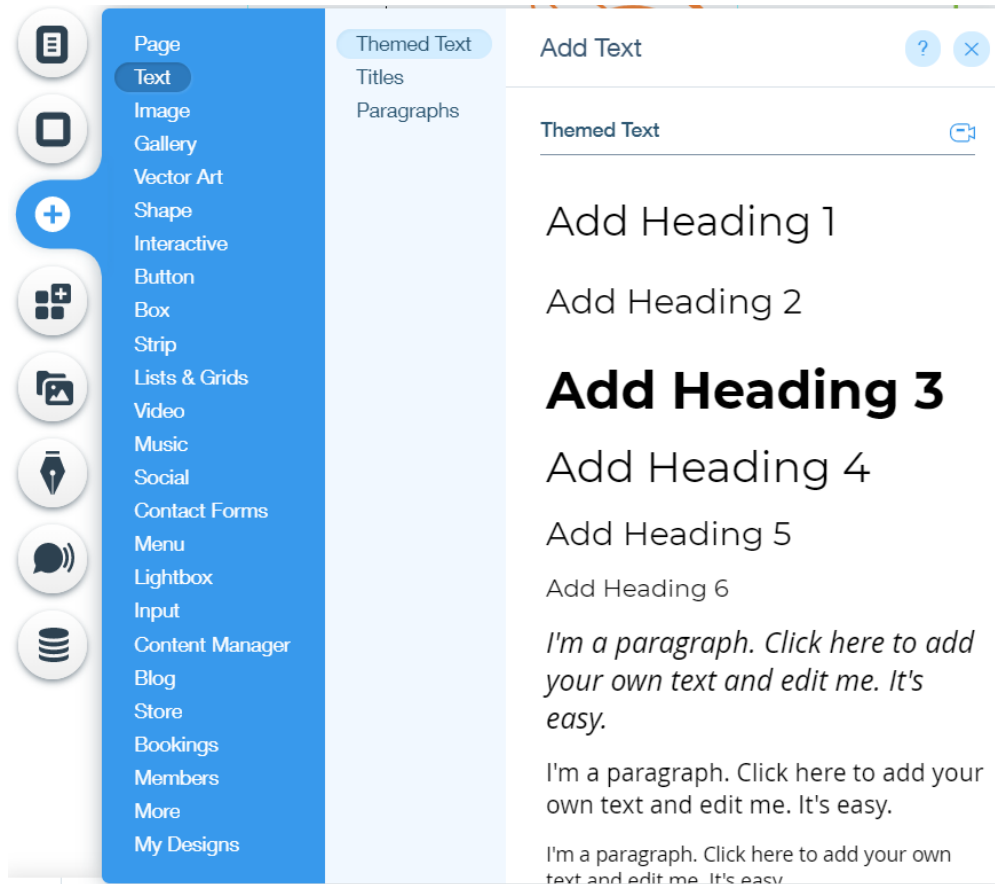
Figure 1: Add Element Menu

1.2 Editing Text Boxes

In order to edit an item in Wix you must first select the item. Once selected there will be a toolbar above the item with lots of options as to what to do. For text boxes the first option is to "edit text," which opens a menu with all the text editing options. The defaults currently use on the website are Monserrat for headings and Open Sans for paragraphs, So long as the font selected for the text remains the original text type heading or paragraph setting, changing the default fonts will change the fonts on the entire website in order to maintain uniformity.

1.3 Managing the Media Library

In order to add an image to the website it must first be a part of the website's "Media Library" For our purposes we always upload from our computers, which will open file explorer and you simply must find and select the desired picture. There also exist other methods of image uploading, all accessible via the media library page. The Site Media Library can be accessed several ways, but the simplest is by selecting the Media Library Icon on the left-hand side of the website editor. Doing so will open the Media Library Menu in Figure 2.
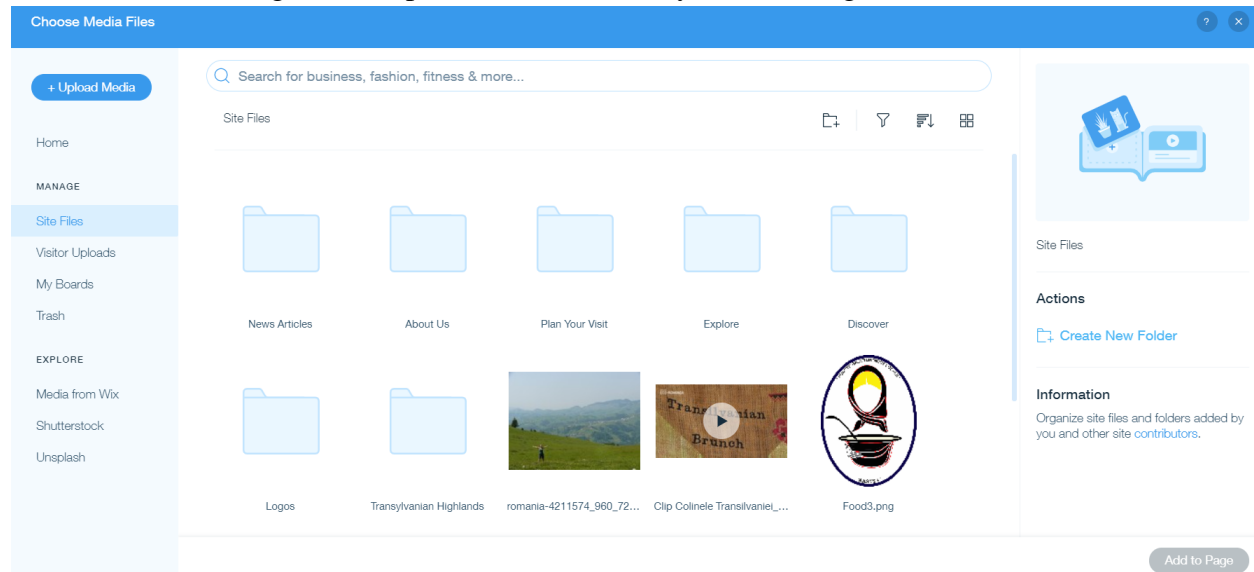

Figure 2: Media File Browser

1.4 The Site Menu

The site menu is how you can access all of the different static pages and dynamic collection pages on the website, as well as add, delete, and reorder the site menu. To move a page to any other point in the site menu simply click and drag. To make a main page a sub-page or vice versa click the button with the three dots to the right part of the page tab, to open a submenu with the sub-page or main-page buttons depending on what the page is already. The buttons to add a page a page or remove a page are located at the bottom of the site menu as depicted in Figure 3.
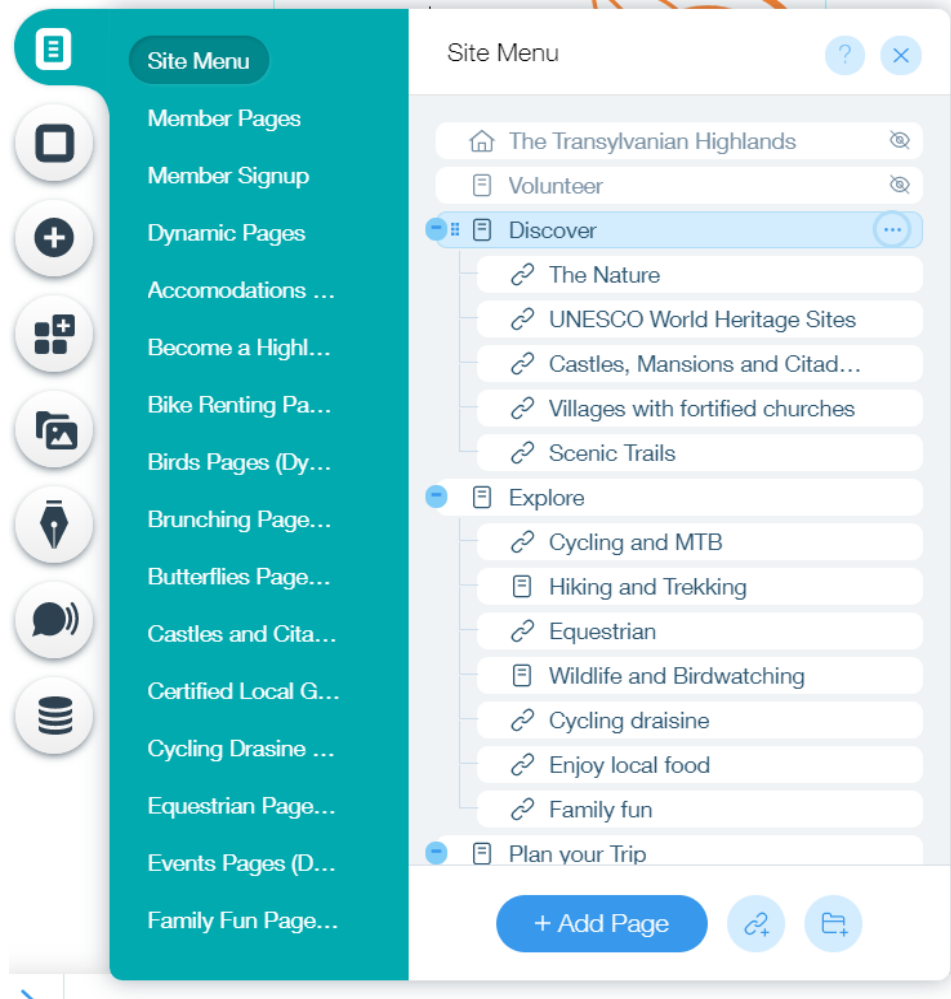
Figure 3: Site Menu

1.5 Linking Items

Linking Items is a very simple process. One must simply Highlight the desired item to be linked and click the link icon above the menu. This will open a window of all the different ways to link the highlighted item which can be seen in Figure 4. Chief among the methods we used were linking to a page on the website selected from the dropdown menu and linking to a URL by pasting the URL into the provided URL box. Per the request of the DMT we have left the discover countdown buttons unlinked since the DMT was unsure where to link some of the buttons.

Figure 4: Linking Menu

1.6 Data Types

One of the important things to understand about the Wix interface, is that there are a lot of different data types. The most commonly used one is Text, which allows for all characters. However, for items like descriptions and article content it is more prudent to use the "Rich Text" data type as it allows the user to include formatting tools such as bullet points and links in the texts while in a database. The reason for this usefulness is more apparent when discussing Dynamic Pages in Section 1.8. Some other data types include address, number, boolean, image, media gallery, and URL. While most things can be entered as a Text or "Rich Text" format, It is important to use the most appropriate data type so that when you attempt to use the functions associated with this information, the website reads the data as the proper input.

1.7 Databases

The database system in Wix is very important as it allows for the website content to be stored and edited in one place, and the changes will take place wherever that content is located on the website. The Wix database system is called collections, and it can be accessed by the bottom icon on the left-hand side of the editor screen. Once clicked a menu will open, like the one in Figure 5, with a list of all the data collections currently created for the website.
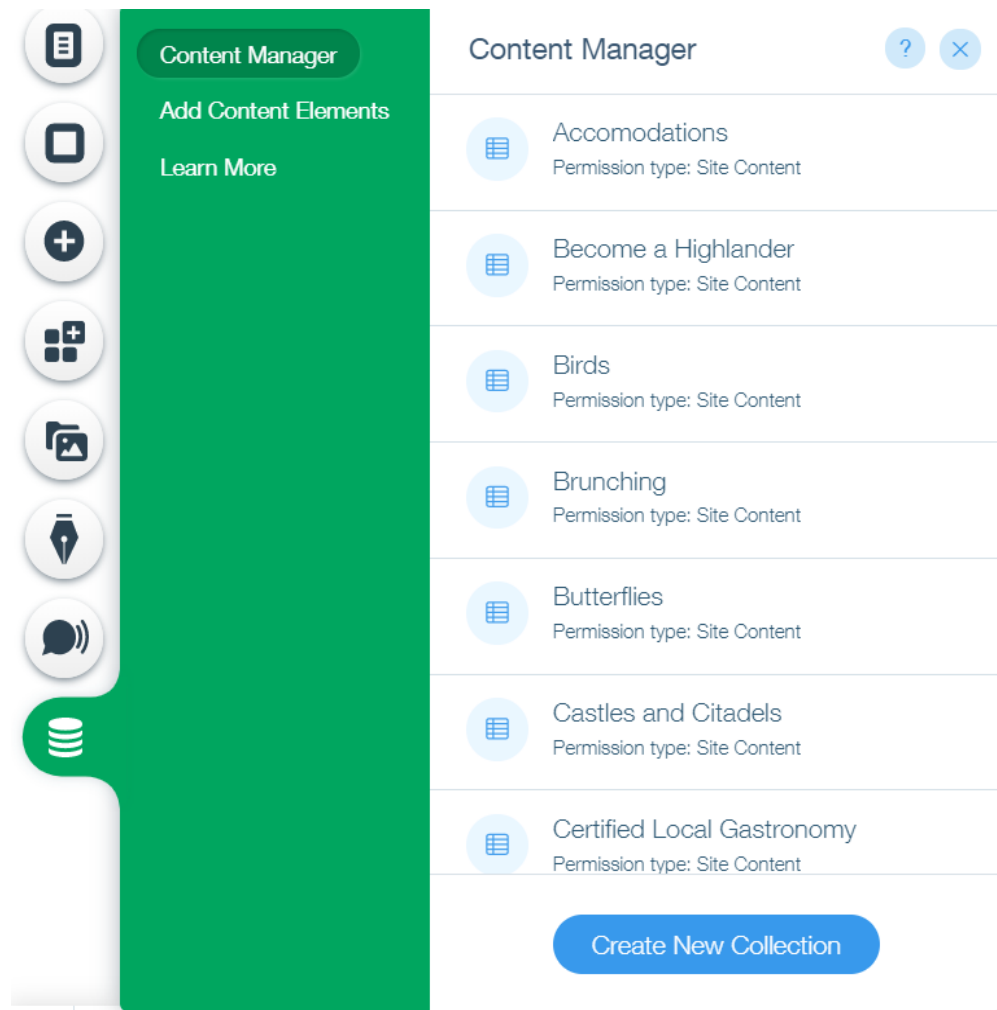
Figure 5: Content Manager Menu

There is a create new collection button at the bottom of this menu. When creating a collection, the interface in Figure 6 will appear, requiring three things: a name, a key, and the purpose of the collection.
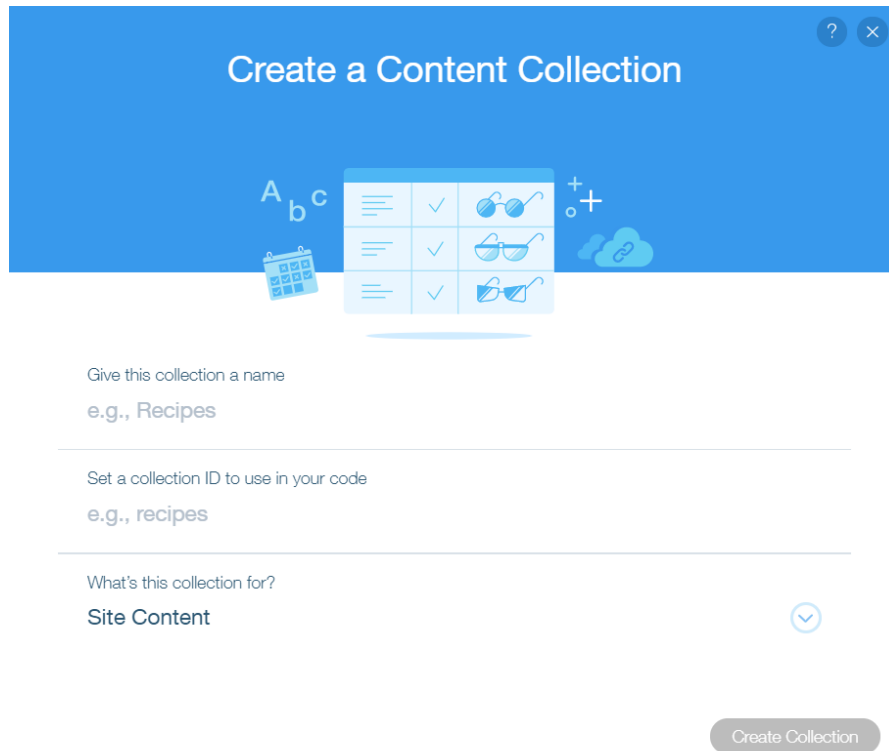
Figure 6: Collection Creation Interface

The name can be changed at any time; however, the key cannot be changed after the collection is created. It does not matter what you call the database, we advise you use something to indicate the collection's purpose. Once the database is completed, you can open it to find a spreadsheet-like interface in which to add your information, shown in Figure 7.

Figure 7: Database Entry

There always exists the pre-existing column "Title." Whether or not you use this does not matter. In our case where we made everything multilingual, we just ignored it. (The

reasoning for this will be explained later) There are two plus buttons on the interface, one to add a row, each row is one data entry, and another to add a column, which adds a place for an additional element for each entry. When adding a column three inputs are required, shown in Figure 8: A Field Name which can be changed at any time, a Field Key which cannot be changed, and the data type of the entered information.

Figure 8: Required Field Information

It is important to take care when creating these columns since it is impossible to fix a mistyped field key without completely removing a column and reentering all of the data. Additionally, some features needed for multilingual rely on specific Field Key Conventions.

1.8 Dynamic Page Set-up

Dynamic pages are useful when there are many items of the same format to be displayed on the website. There are two types of dynamic pages, Collection pages and Item pages. A Collection page will display data from each item, whereas an Item page is a generalized template to display data for an individual item. Collection pages usually include links to the Item pages for each item. Dynamic pages use a database to store the page data. To create a set of dynamic pages, click the Menus and Pages button on the left of the screen, and click on the "Dynamic Pages" tab. Then, click "Add to Site" then select the database for which you would like to create the dynamic page. Wix will then create a Collection page and an Item page for you. If the automatically-created item page is not of the desired category, the category can be changed by going into the settings of the dynamic page (Site Menu > [Dynamic Page tab] > [Item page] > … > Settings) and replacing the category with the field key of the desired category field, as shown in Figure 9. Additional item pages can also be created.
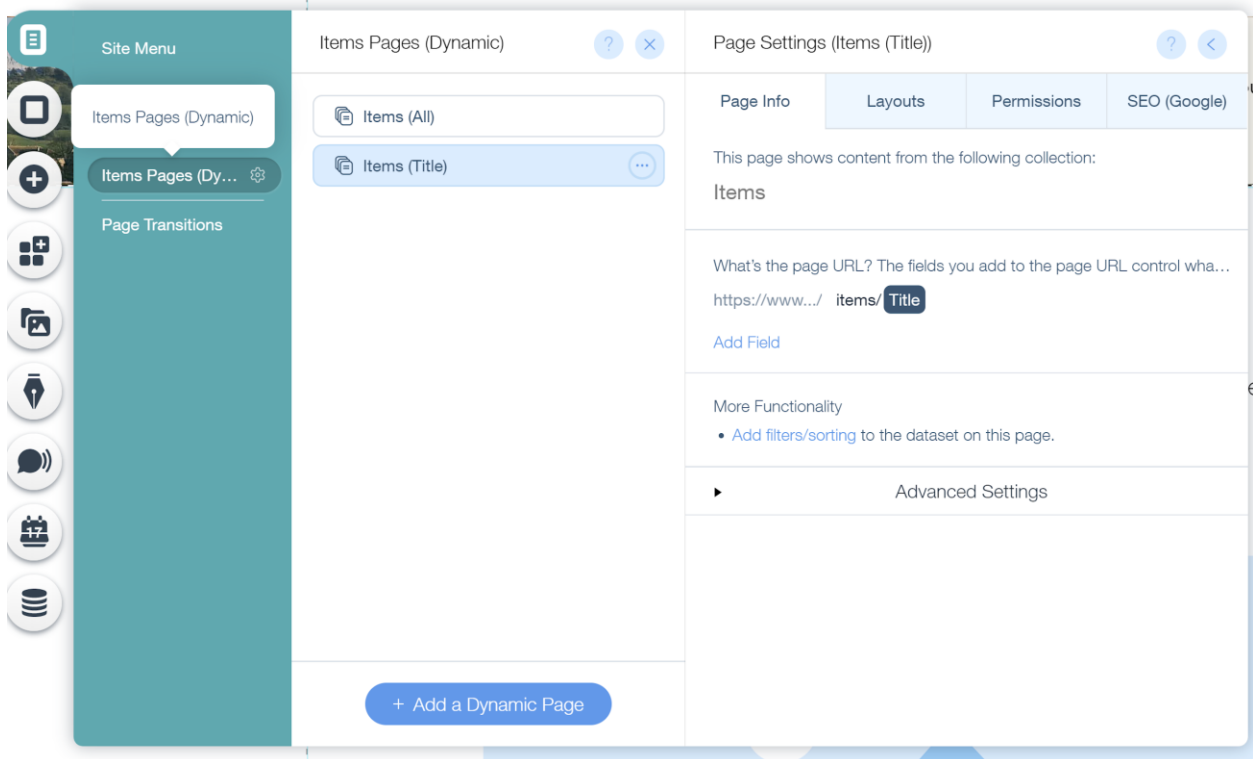
Figure 9: Dynamic Page Item URL Editing

On the Collection page, the data is generally displayed in a Repeater, which repeats a format for each item in the database. On the Transylvanian Highlands Destination website, this is generally displayed in a repeater with a picture background (or a red background if there is no picture for an item), with a title for the items and a button link to each item, shown in Figure 10. This Repeater can be used by simply going to another Dynamic Collection page and copying the repeater, then pasting it on your new Dynamic Collection page. To set the fields in the repeater, simply select the Repeater, then click the "Connect to Data" button, and select the dataset to connect to and the data fields to connect each relevant element to in the interface shown in Figure 11. For multilingual fields, see Section 2.3 for instructions. Static elements can also be added to the page (content that is not connected to the database) by adding any website element and adding the desired content. Static elements can be made multilingual using the instructions in Section 1.9.

Figure 10: Typical Repeater Format

Figure 11: Data Connection Panel

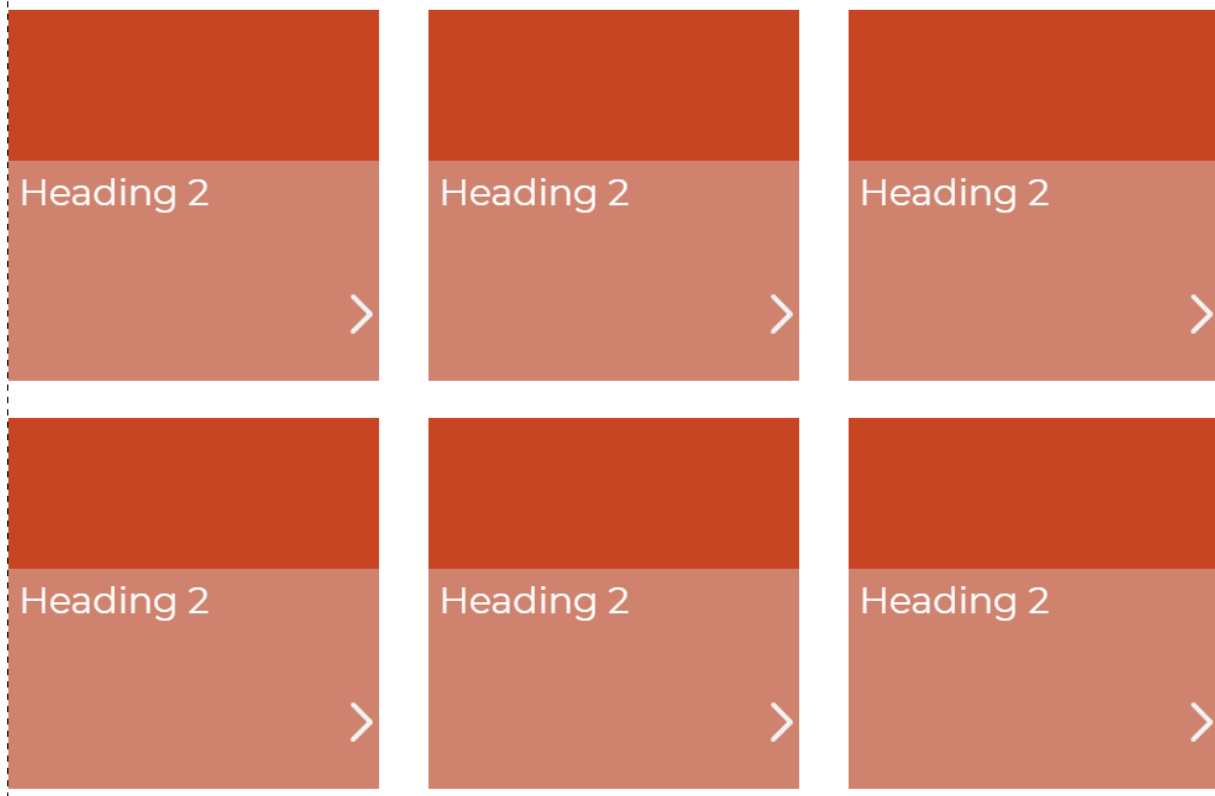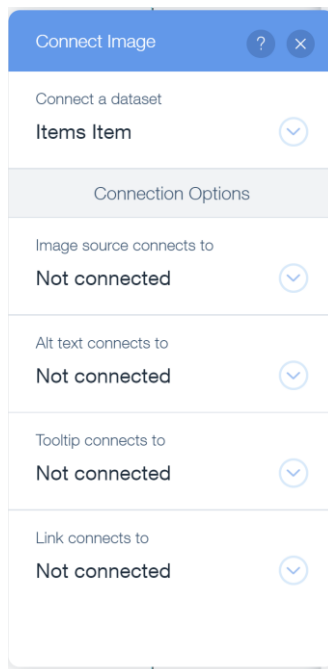For the Item page, the data can be displayed in appropriate elements for each data field. Wix will create an Item page for each item in the corresponding database, but each page's format will be identical, and will be edited using one generalized template. These are connected as with

the Dynamic Collection page, by clicking the "Connect to Data" button on each element and choosing the appropriate data field to display in the element. For Image and Media Gallery datatypes, these should both be displayed in a Gallery, and for Media Galleries the data should be selected as below. For multilingual data, see Section 2.3 for instructions. Static elements can also be added to the page. These will be the same on all Item pages and can be added in the same way as on the Collection page and can also be made multilingual using the instructions in Section 1.9.

To make the collection page available in the menu, a link is used. When the Dynamic Page is generated, a link will be automatically created in the Site Menu. This will be found at the bottom of the Site Menu, and can be moved and renamed, or deleted if there is no link required.

1.8.1 Accommodating Large Datasets on Dynamic Pages

By default, datasets only load a select number of items at a time, in order to decrease page waiting times. For dynamic collection pages with datasets greater than 12 items, the typical default, it can be ensured that all of the items are still displayed by including an invisible line which when it enters the viewport, will load an additional set of items. This functionality has already been added to all existing collection pages. In order to do this, knowledge of how to use Wix Code is necessary. If you have not yet, see Section 1.12 before continuing.

In order to add functionality, first a line must be added. By clicking the "Add" button on the left toolbar, you can go to Shapes > Lines, and place a line on the page. Move the line to slightly below the repeater and click "Stretch" to make it go across the entire screen. After entering Dev Mode, click the line, and change the property ID to loadLine in the Properties panel. Then, also in the properties panel, add an onViewportEnter event function, which will appear in the code for the page. Go to this code, and add the following, where datasetID is the property ID of the dataset for the dynamic page:

```
$w("#datasetID").loadMore()
    .then( () => {
    console.log("Done loading more data");
    makeRepeater();
});
```

1.9 Multilingual Settings

For the Transylvanian Highlands Destination website, the primary language is Romanian, with an English Version as well. To that end any additions or formatting changes to the Romanian page will change the English Version. However, the opposite is not true. All text boxes on the English version, as well as any secondary language to be added later will have a translate with Google Translate button, as well an edit translation button, shown in Figure 12. These allow for easy translation, and the ability to fix the translation so that it still reads with the

same intent as the Romanian version. The key with this is to edit the Romanian version first always, and fix the secondary languages accordingly.
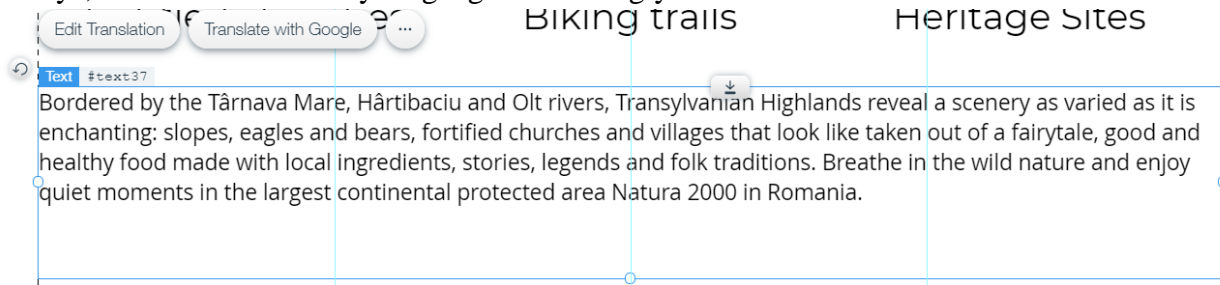
Figure 12: Translation Options in Secondary Languages

1.10 Adding Apps to the Website

Wix offers a store of apps to be added to the website that are not already a part of the editor. The Event Calendar discussed later is an example of one of the apps. There is an icon on the left hand side of the editor to access this store, shown in Figure 13 and each of these apps comes with additional documentation about how to use them and an email to Wix support will usually answer any lingering questions as to how to use the app.
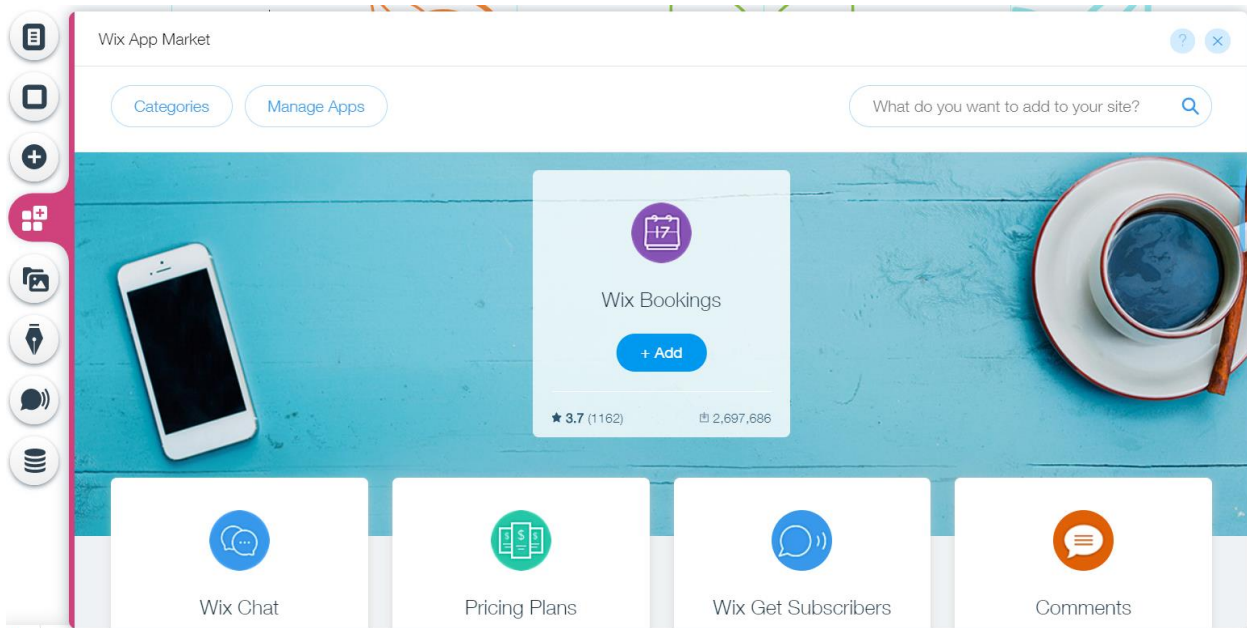
Figure 13: Wix App Market

1.11 Wix Forms

Wix Forms is an example of one of the apps spoken of in the previous section. It allows for automated creation of a form template similar to what we manually created with the add events page. Wix Forms can be added to the website by clicking the "+" button on the left of the screen and going to Contact Forms, shown in Figure 14. However, the free version of this app

only allows for 5 forms to be created. We used this twice already for the contact us form, and the request a website change form. The advantages of this include that it allows for email notifications of a form submission very easily. In the form settings you must simply add the desired email to be notified. However, this tool is very useful, but is not necessary. Should you need to use it more than 3 more times it would save money to just make the forms by hand.
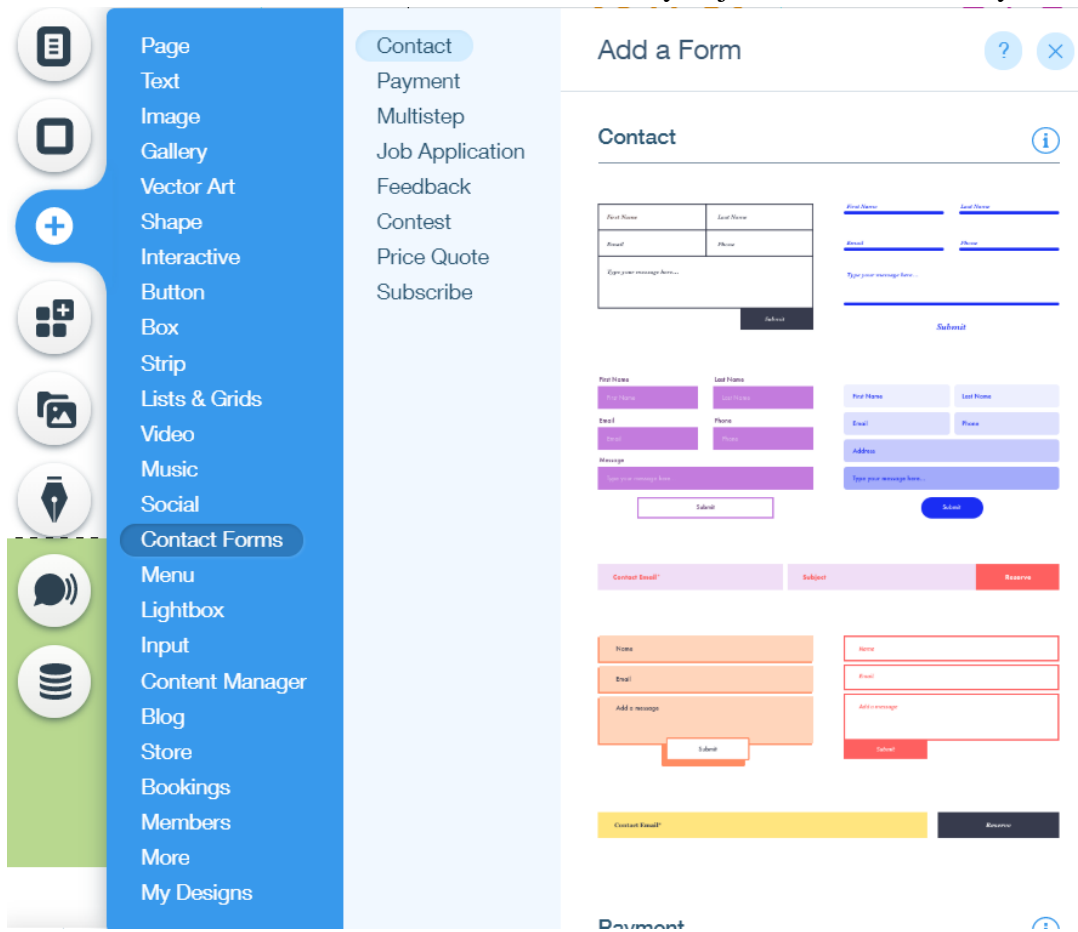
Figure 14: Wix Forms Elements

1.12 Wix Code

While Wix has a large suite of built-in features, Wix Code allows users to further customize their website. In order to access Wix Code, click the "Dev Mode" button on the top toolbar, and then click "Turn on Dev Mode", as shown in Figure 15.
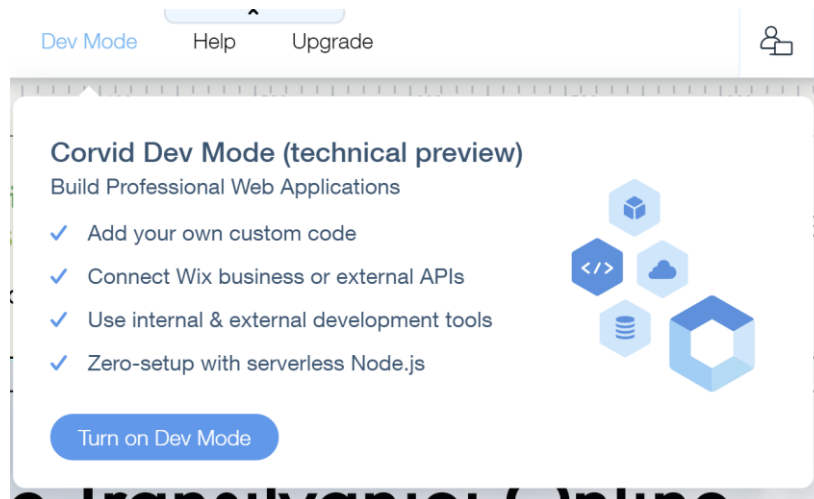
Figure 15: Enabling Wix Dev Mode

This will change the interface to something like in Figure 16.
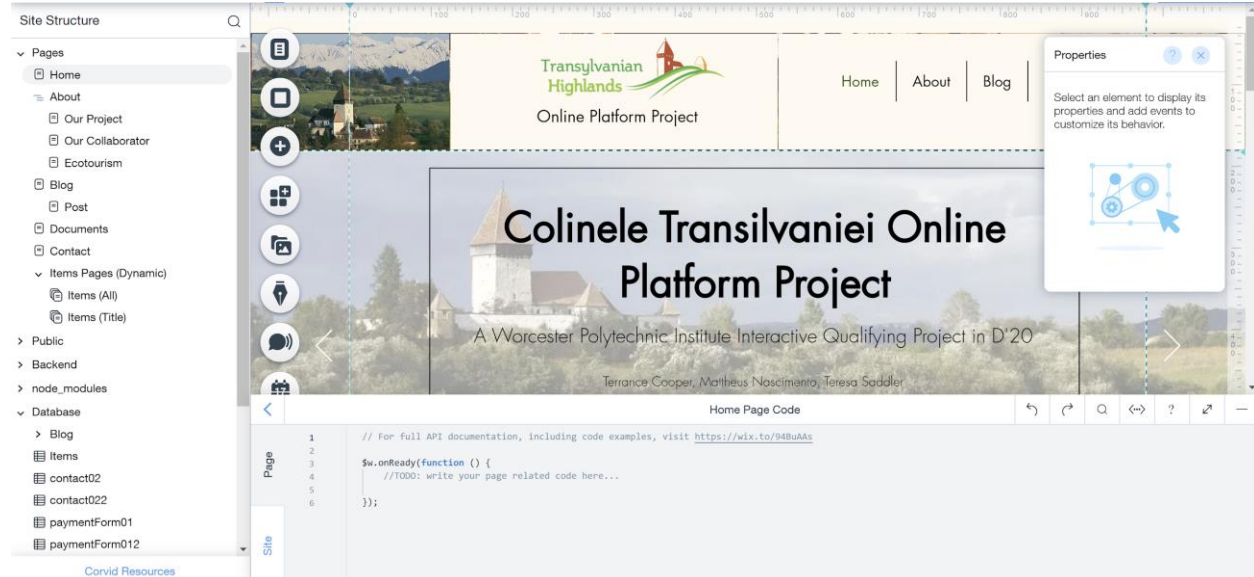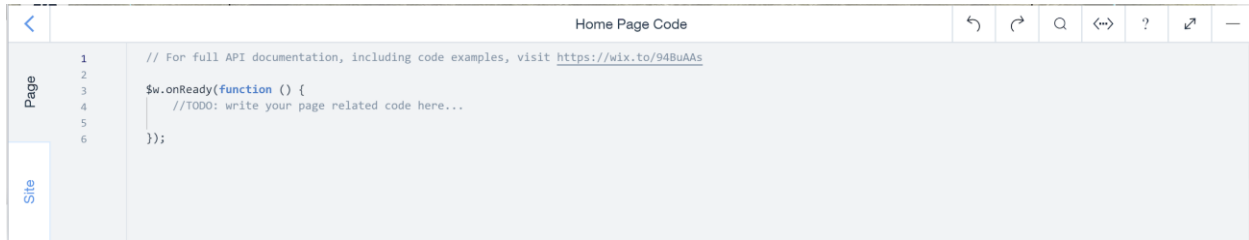
Figure 16: Wix Code Interface

One of the most important parts of the Dev Mode interface is the Code section on the bottom, shown in Figure 17, which has two tabs on the left-hand side, one Page code, which is just for the current page of the website, and one for the Site code, which affects the entire website. If this bar does not appear at the bottom, click the up arrow on the bar at the bottom of the screen. To minimize while it is open, click the "-" at the top right of the bar. The bar can be made bigger or smaller by hovering over the top edge and then clicking and dragging as desired.

Figure 17: Code Section of Dev Mode

On the left, the panel in Figure 18 will appear. This shows you the different pages, as well as the databases and any additional user code that makes up the website. This area can be used to navigate.
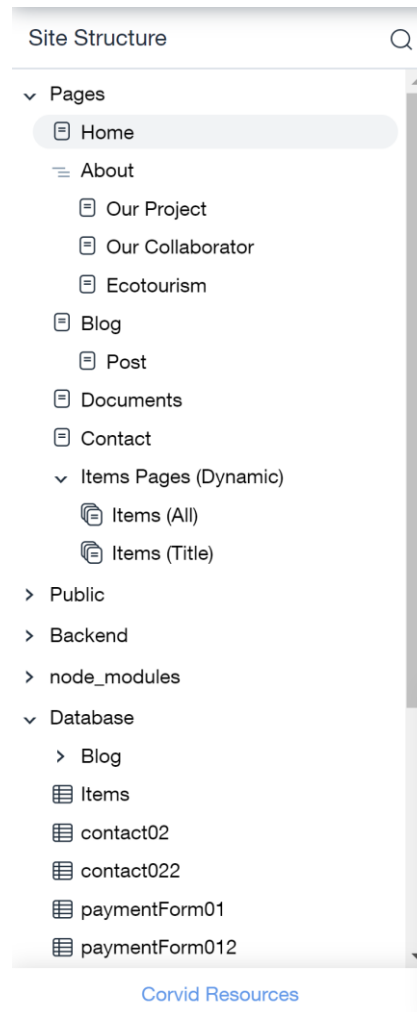
Figure 18: Site Structure Section of Dev Mode

If you click on any element of the website, a Properties panel, shown in Figure 19, is available (if it is not visible, you can right click on the element and select "View Properties" in the menu that appears). This panel allows you to set the ID of the element, which is important for being able to interact with the element in code. It also allows you to select properties of the element on load, such as whether it is hidden or collapsed. At the bottom, options of events are shown. If you

hover over one of these events, a "+" button will appear, and when clicked on, this will bring up text next to it. This can be edited, before clicking away or clicking enter, and then it will become a function name that is triggered on the corresponding event. The function will appear in the code for that page and can be filled in to respond in some way to the event. If you hover again, you can delete this function, but it will not remove it from the code, this must be done manually if desired.
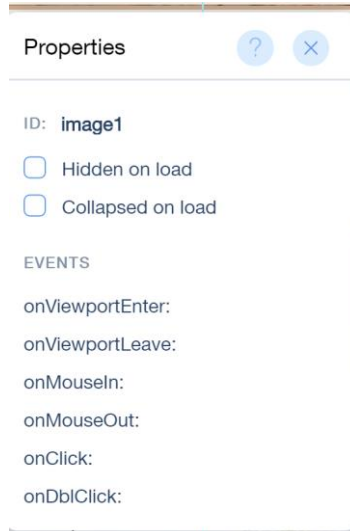
Figure 19: Properties Panel in Wix Dev Mode

Documentation on Wix's Corvid API, which is how you interact with different Wix elements, can be found here:

https://www.wix.com/corvid/reference/

Chapter 2: Site Specific Items

2.1 The Events System

The goal of this special feature of the project was to present a way for members of the ecotourism network to add event information themselves without the need for the Website Administrators to add the information themselves. Firstly, we created a members only page, via the site menu. Secondly, we added the appropriate input fields to the page. Next, we created a collection with the corresponding columns to the input data. Next go back to the event input page and create a dataset for the new collection. This dataset should be write-only. Go through each input field and be sure to link each input to its corresponding column in the dataset. This is accessible via the icon all the way to the right of the field specific tool-bar that appears when the input is selected. The icon shares the same image as the collections icon on the left-hand side of the editor and will light up green when connected to a field in the corresponding collection. A "Submit" button will also need to be created and linked similarly to indicate when the data

should be added to the collection. We have additionally added email notifications at the request of our collaborators which will be explained more completely in Section 2.2.

2.1.1 The Events Page

The primary way to view events is on the Events page, displayed in Figure 20. This page contains a list of all events in the region. The events show the name, host, date, location, and description, and also contain a link to an item page with additional information and display an accompanying picture. If an event is not translated into the given website language, then it will not be displayed for that language. The events can be filtered by keyword, date, and/or location, using the input fields at the top. They are filtered when the "Filter" button is clicked, and when the "Reset" button is clicked, the full list of events is displayed again.

Figure 20: Events Page

The following is the code from the events page. Comments have been added to explain how the code works.

```
import wixData from 'wix-data';
import wixWindow from 'wix-window';


$w.onReady(async function () {
    getData(); // Calls the getData function to populate the
```

```
repeater with events
});

/**
 * getData
 * Fetches the event data from the Events database which has valid
data for the selected language, is scheduled after the current date
and time, and orders from the soonest to the latest event
 * Calls setRepeater to assign all the data in the repeater
 */
export function getData() {
    // Hides repeater during this process since loading can be
somewhat slow, so that the default repeater filler isn't visible to
users as they wait
    $w("#eventRepeater").hide();
    let language = wixWindow.multilingual.currentLanguage; // Grabs
language code
    let today = new Date(); // Gets current date and time
    // Creates query for Events database
    let fullData = wixData.query("Events")
        .isNotEmpty("eventname_" + language) // Gets only data
with a translated name
        .ge("date", today) // Gets only data for dates that
haven't passed
        .ascending("date"); // Orders data by date
    // Runs query
fullData.find()
    // After query is complete, send to repeater
        .then( (results) => {
            setRepeater(results, language);
        })
}

/**
 * setRepeater(results, language)
 * results = database query results
 * language = language code
 * Sets the items in the database query results to the data in the
repeater
```

```
 * Runs makeRepeater to display the new data in the repeater
 */
export function setRepeater(results, language) {
     $w("#eventRepeater").data = results.items; // Set items from
results to the data in the repeater
     makeRepeater(language); // Make repeater visualize new data
}

/**
 * makeRepeater(language)
 * language = language code
 * Sets elements in the repeater to display data
 */
export function makeRepeater(language) {
     // Loops through each item in the repeater's dataset
     $w("#eventRepeater").forEachItem( ($item, itemData, index) => {
          // Set the elements in the repeater to different fields of
the data
$item("#eventTitle").text = itemData["eventname_" + language];
          let description = itemData["description_" + language];
          if (description.length > 310) {
               // If the description is too long, only the first 310
characters are shown
               $item('#eventDescription').text =
description.substr(0, 310) + "...";
          } else {
               $item('#eventDescription').text = description;
          }
          if (itemData.eventPicture !== undefined) {
               $item("#eventImage").src = itemData.eventPicture;
          } else {
               $item("#eventImage").hide();
          }
          $item("#host").text = itemData.host;
          $item("#eventDate").text =
itemData.date.toLocaleString(language);
          $item("#eventAddress").text = itemData.address;
          $item("#eventButton").link = itemData["link-events-1-
address"];
```

```
        });
        // Make the repeater visible to the user
        $w("#eventRepeater").show();
}


/**
 * resetButton_click(event)
 * event = event caused by clicking the reset button
 * Resets the fields in the inputs
 * Calls getData to fetch data with no filters
 */
export function resetButton_click(event) {
        getData(); // Calls getData to fetch data with no filters
        // Reset the values in all of the inputs
        $w("#keywordInput").value = undefined;
        $w("#startDatePicker").value = null;
        $w("#endDatePicker").value = null;
        $w("#locationInput").value = undefined;
}


/**
 * filterButton_click(event)
 * event = event caused by clicking the filter button
 * Calls filterRepeater to fetch data filtered based on the input
fields
 */
export function filterButton_click(event) {
        filterRepeater(); // Call filterRepeater to fetch filtered data
}


/**
 * filterRepeater()
 * Collects the values of all of the inputs
 * Creates Event database queries for each different input
 * Runs queries to obtain the filtered events data
 * Calls setRepeater to set the repeater data to the new filtered
data
 */
export function filterRepeater() {
```

```javascript
    // Store the values of the inputs in variables
    let keyword = $w("#keywordInput").value;
    let startDate = $w("#startDatePicker").value;
    let endDate = $w("#endDatePicker").value;
    let location = $w("#locationInput").value;
    // Get the language code
    let language = wixWindow.multilingual.currentLanguage;
    // Get the date
    let today = new Date();

    // Create default queries for each input which return all of
the events in the database
    let keywordQuery = wixData.query("Events");
    let startDateQuery = wixData.query("Events");
    let endDateQuery = wixData.query("Events");
    let locationQuery = wixData.query("Events");
    // Include a query for valid data to ensure that it is
available in the user's language and the event hasn't happened yet
    let validQuery = wixData.query("Events")
        .isNotEmpty("eventname_" + language)
        .ge("date", today);

    // Check if the user has input values other than the default
for the input fields, and if so, override the default filter for the
input field with data filtered based on the input
    if (keyword !== "") {
        keywordQuery = wixData.query("Events")
            // Include events that have the keyword in the event
name
            .contains("eventname_" + language, keyword)
            .or(
                wixData.query("Events")
                    // Include events that have the keyword in
the description
                    .contains("description_" + language,
keyword)
            );
    }
    if (startDate !== null) {
```

```
        startDateQuery = wixData.query("Events")
            // Include events that occur on or after the start
 date
            .ge("date", $w("#startDatePicker").value);
    }
    if (endDate !== null) {
        endDateQuery = wixData.query("Events")
            // Include events that occur on or before the end
 date
            .le("date", $w("#endDatePicker").value);
    }
    if (location !== "") {
        locationQuery = wixData.query("Events")
            // Include events that include the location in the
 address
            .contains("address", location);

    }
    // Combine all of the queries into one, and sort the events by
 date
    let fullQuery = keywordQuery
        .and(startDateQuery)
        .and(endDateQuery)
        .and(locationQuery)
        .and(validQuery)
        .ascending("date");
    fullQuery.find() // Run the query to obtain the filtered events
        .then( (results => { // Once the query has been run, send
 the events to the repeater
            setRepeater(results, language);
        } ));
}
```

2.1.2 Featured Events

One of the ways to view events on the website is through the Featured Events section of the home screen, shown in Figure 21. Up to three events can be featured in a slideshow. The title of the event, the date, the description, and a link to the events page is featured here, as well as a photo of the event. If there are fewer than three events selected, then default text will be shown instead for the extra slides, providing links to places throughout the website. If an event selected

to be featured has not been translated on a given language version, then the default content for the slide will be displayed instead. In order to select featured events, a checkbox must be marked in the "Featured" column of the Events database, shown in Figure 22. More than three events can be selected, however only the first three will display on the slideshow.
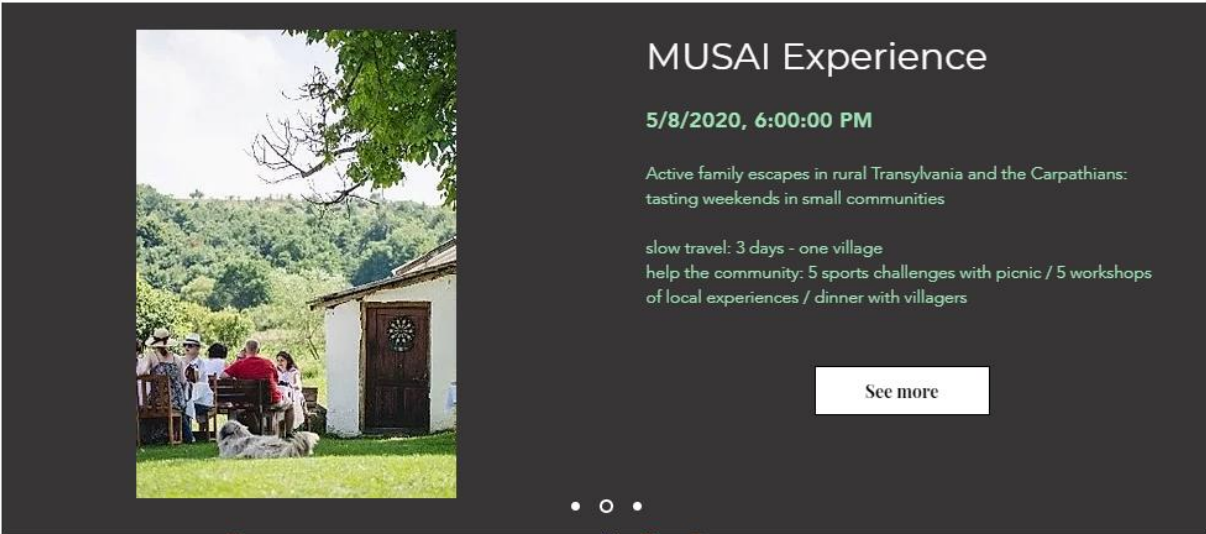
Figure 21: Featured Events Section on Homepage

Figure 22: Featured Events Column in Events Database

The following code is used to control the slideshow, which is triggered by the Events dataset loading. Comments are provided throughout to explain what the different sections of code are doing.

```
export function eventsDataset_ready() {
    let language = wixWindow.multilingual.currentLanguage;
    // Get the first three items from the filtered Events dataset
    $w("#eventsDataset").getItems(0, 3)
```

```
        .then( (result) => {
                let num = result.items.length; // num = number of
events
                let idx = 0;
                // Iterate through the slides of the slideshow, until
it runs out of events
                for (let slide = 1; slide <= num; slide++) {
                        let item = result.items[idx]; // item = current
slide's event
                        // As long as the event has been translated,
display on the slide
                        if (item["eventname_" + language] !==
undefined) {
                                if (item.eventPicture === undefined) {
                                        $w('#eventImage' +
slide.toString()).hide();
                                } else {
                                        $w('#eventImage' +
slide.toString()).src = item.eventPicture;
                                }
                                $w('#eventTitle' + slide.toString()).text
= item["eventname_" + language];
                                $w('#eventDate' + slide.toString()).text =
item.date.toLocaleString(language);
                                $w('#eventDate' +
slide.toString()).show();
                                let description = item["description_" +
language];
                                if (description.length > 340) {
                                        $w('#eventDescription' +
slide.toString()).text = description.substr(0, 340) + "...";
                                } else {
                                        $w('#eventDescription' +
slide.toString()).text = description;
                                }

                                $w('#eventDescription' +
slide.toString()).show();
```

```
                              $w('#eventButton' +
slide.toString()).show();
                              $w('#altButton' +
slide.toString()).hide();
                           }
                        idx = slide;
                     }
               });
}
```

2.2 Email Notifications

When using wix forms having an email notification sent can be easily done by following this simple guide:

https://support.wix.com/en/article/receiving-email-notifications-for-form-submissions

For parts of the website that put information into the database without being a wix form, a third-party application must be used. Setting up these notifications takes writing JavaScript code in three different places. Two of these will be used by every page and will only be made once, they also contain a secret key that we do not want visible on the code a visitor to the website can access. The first will look like this:

```
//email.jsw

import {sendWithService} from 'backend/sendGrid';

export function sendEmail(subject, body) {
  const key = "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";
  const sender = "mcnascimento@wpi.edu";
  const recipient = "mattheusnascimento98@gmail.com";
  return sendWithService(key, sender, recipient, subject, body);
}
```

The important parts here are the key, which must come from an account made with an email sending service, in this case SendGrid, The sender email which must be registered with the sending service, and the recipient email which is the receiver of the notification. Everything else will generally be the same no matter the application.

The second looks like this:

```js
//sendGrid.js

import {fetch} from 'wix-fetch';

export function sendWithService(key, sender, recipient, subject, body) {
  const url = "https://api.sendgrid.com/api/mail.send.json";

  const headers = {
    "Authorization": "Bearer " + key,
    "Content-Type": "application/x-www-form-urlencoded"
  };

  const data = `from=${sender}&to=${recipient}&subject=${subject}&text=${body}`;

  const request = {
    "method": "post",
    "headers": headers,
    "body": data
  };

  return fetch(url, request)
    .then(response => response.json());
}
```

This code will be written unedited assuming SendGrid is used. For other email sending services they will have their own instructions on how to implement this file.

Now the last piece of code must be written on every page that uses our notification system. It looks like this:

```
import {sendEmail} from 'backend/email';

$w.onReady(function () {
  $w("#dataset1").onAfterSave(sendFormData);
});

function sendFormData() {
  const subject = `New Event:  ${$w("#input8").value}`;
  const body = `Date: ${$w("#datePicker1").value}
    \rStart Time: ${$w("#timePicker1").value}
    \rAddress: ${$w("#input10").value}
    \rHost Name: ${$w("#input9").value}
    \rDescription: ${$w("#textBox2").value}`;

  sendEmail(subject, body)
    .then(response => console.log(response));
}
```

Now this one will change based on the page it is used in, the /r symbolizes a new line in the email. The other black text such as Date:, Start Time:, and Address: are plain writing. The ${$w([field here]).value} will get whatever value is put into the field put after the # in between the '', as seen in red. This name can be acquired by moving your mouse over the field you wish to pull from.

2.3 Multilingual Databases

While Wix has multilingual settings, Wix Multilingual does not support databases or dynamic pages. By setting up the databases as follows, and by using Wix Code, the dynamic pages can be made multilingual manually. For any data field that will be different between languages, a different field for each language available on the website must be made, using the following notation where [Name] is the name of the field and [lang] is the two-character language code:

Name: [Name] (lang) (ex. Title (RO) and Title (EN))
Field Key: name_lang (ex. title_ro and title_en)

By using this notation, you will be able to store the data consistently for multilingual elements. Data should be put in the appropriate language for each column of the database. This can then be displayed on the correct language version of the website using Wix Code on the pages that the data is displayed on. For each element that you want to connect multilingual data to, instead of connecting the element to data using the Wix interface as in 1.8, they must be connected manually using Wix code. This is done slightly differently for normal items and repeaters. In either case, the ID on the dataset as well as any elements to connect to multilingual must be set, and in the case of a repeater, this includes both the repeater ID and the element ID of any element in the repeater that will be connected to multilingual data.

To connect a normal element to multilingual data using Wix code, two statements need to be added to the top of the code file:

```
import wixWindow from 'wix-window';
import wixData from 'wix-data';
```

On the dataset properties window, click the "+" next to OnReady and then click the Enter key in order to create a dataset on ready function. It will display as in the figure. In this function, put the following lines, were "datasetName" is the ID assigned to the dataset on the page:

```
let language = wixWindow.multilingual.currentLanguage;
let object = $w("#datasetName").getCurrentItem();
```

And then for each element that needs to be connected to multilingual data, put a copy of the following line where "elementName" is the ID assigned to the element which you are trying to connect to data, "fieldKeyName" is the general section of the field key of the data column set you are trying to connect (where the whole field key is in the format fieldKeyName_lang, where lang is the language code), and "property" is the property of the element that you are setting (the appropriate field can be found using the Corvid API documentation):

```
$w("#elementName").property = object["fieldKeyName_" + language];
```

For repeater elements, the format is only slightly different. The two import statements above must still be added to the top of the file, and an OnReady function must be created for the dataset on the page as above. In the OnReady function, though, the following line of code will be added:

```
makeRepeater();
```

This will call another function which you must create. First, add the following function code:

```
export function makeRepeater() {

}
```

Inside this function, add first the lines, where "repeaterName" is the ID of the repeater:

```
let language = wixWindow.multilingual.currentLanguage;
    $w("#repeaterName").forEachItem( ($item, itemData, index) => {

} );
```

And then, for each element in the repeater that must be set, copy the line, where "elementName" is the ID of the element being set, "property" is the property of the element that you are setting, and "fieldKeyName" is the general section of the field key of the data column set you are trying to connect:

```
$item("#elementName").property = itemData["fieldKeyName_" +
language];
```

2.4 Location Filtering

In order to make finding relevant items more easily on dynamic collections pages, a location filter can be added so that users can select a location in a dropdown and only the items that are located in that village will show up in the repeater. An example of this is on the Accommodations page, shown in Figure 23, though this has not been added on any other dynamic pages at this time. The dropdown menu allows users to select all of the villages represented by the items, and when they select one the items in the repeater will be changed. The reset button removes the filter so that the repeater shows all of the items in the database again.
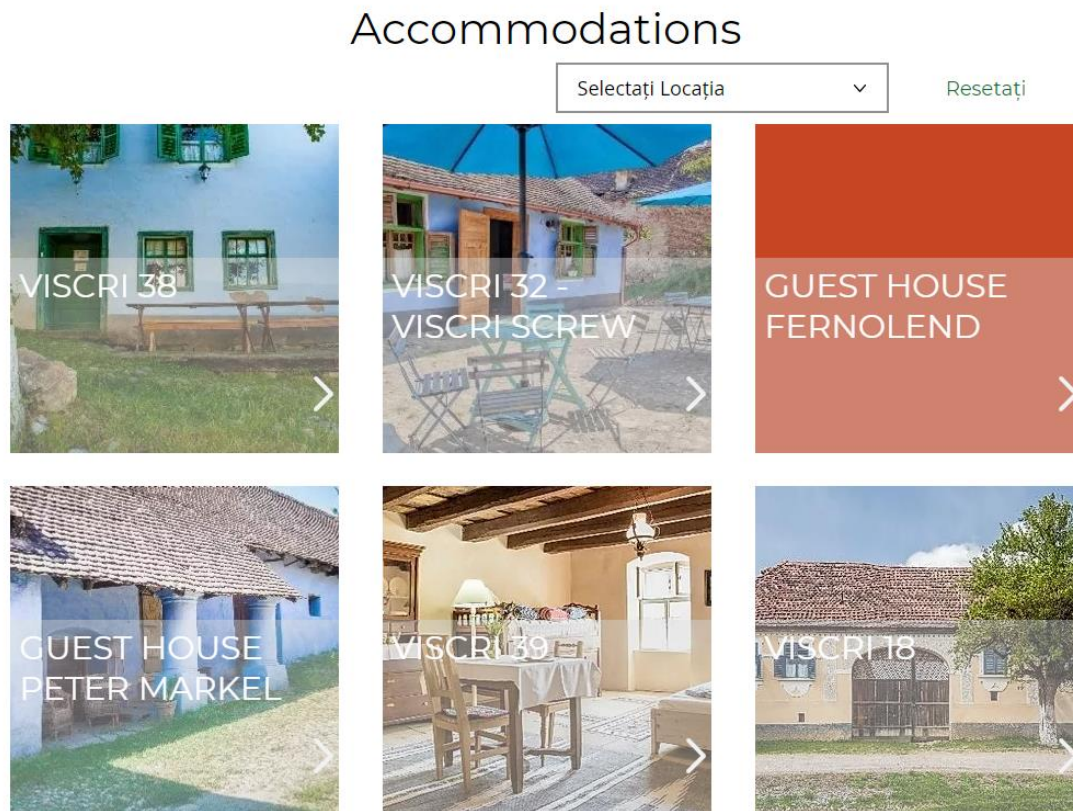
Figure 23: Accommodations Page Location Filtering

For this functionality to be added, first a locations column must be present in the database used for the dynamic collection page. The locations column should be named "Location" with the field key "location" and should be of field type "Reference" where the referenced collection is "Villageswithfortifiedchurches" as shown in Figure 24. In the locations column, the correct village can be selected by clicking on the down button and searching for the corresponding village and selecting the right one as shown in Figure 25. Once this column is added, go to the dynamic collection page and add a text input and a button. Change the design of the dropdown and button, as well as the text, as desired, being sure to add a translation in different language versions, and then add property IDs for each, setting the dropdown ID to "locationInput" and the button to "filterResetButton".

Figure 24: Accommodations Database Location Field

Figure 25: Selecting Reference Data in Location Field

The next step is to add code to control these. On the dynamic page, there is likely already a function called makeRepeater() in order to make the dynamic page repeater multilingual, as in Section 2.3. If there is not, ensure that you do not include calls to this function in the code you add in this section. If that function is present, you can copy the code as-is. In order to make the dropdown options correspond with the villages in the region, code must be added to the onReady function for the page, which should look like:

```
$w.onReady(async function () {
```

```
})
```

Inside this function, add the following code, where Database is the key of the database that the dynamic page is attached to (not to be confused with the property ID of the dataset):

```
let options = [];
let village = "";
$w("#locationInput").hide();
wixData.query("Database")
      .distinct("location")
      .then( results => {
            results.items.forEach((id) => {
                  wixData.get("Villageswithfortifiedchurches", id)
                        .then( (item) => {
                              village = item["title_ro"];
                              options.push({"label": village, "value":
village});

                              $w("#locationInput").options = options;
                        });
                  $w("#locationInput").show();
            });
      });
})
```

The next step is to add a function to filter the dataset based on the location dropdown value. To do this, add a change event on the dropdown, from the Properties panel. Inside the function that is created, add the following code, where datasetID is the property ID of the dataset on the page:

```
let location = $w("#locationInput").value;
      wixData.query("Villageswithfortifiedchurches")
            .eq("title_ro", location)
            .find()
            .then( (results) => {
                  let correctLocation = results.items[0];
                  $w("#datasetID").setFilter( wixData.filter()
                        .eq("location", correctLocation["_id"]))
                        .then( () => {
                              makeRepeater();
                        });
            });
```

Finally, a function needs to be added to make the reset button clear the filter on the dataset so that the repeater shows all items on the page again. In order to make the repeater button work, an onClick event function must be added for the button using the Properties panel. Inside this function, add the following code, where datasetID is the property ID of the dataset on the page:

```
$w("#datasetID").setFilter( wixData.filter())
        .then( () => {
            makeRepeater();
        });
    $w("#locationInput").value = undefined;
```

2.5 Regions Interactive Page

Accessed in "Villages with Fortified Churches" on the navigation bar, the dynamic collection page to access the villages in different regions is set up differently than most collection pages, as instead of a repeater with each item, there is an interactive graphic showing each of the regions, that when hovered, becomes a solid block which is a link to the region page, as shown in Figure 26. This was accomplished by creating graphic assets based on the map region, with two graphics for each region, one when hovered over and one when not hovered over, and then adding Wix Code to control their behavior.

Regions
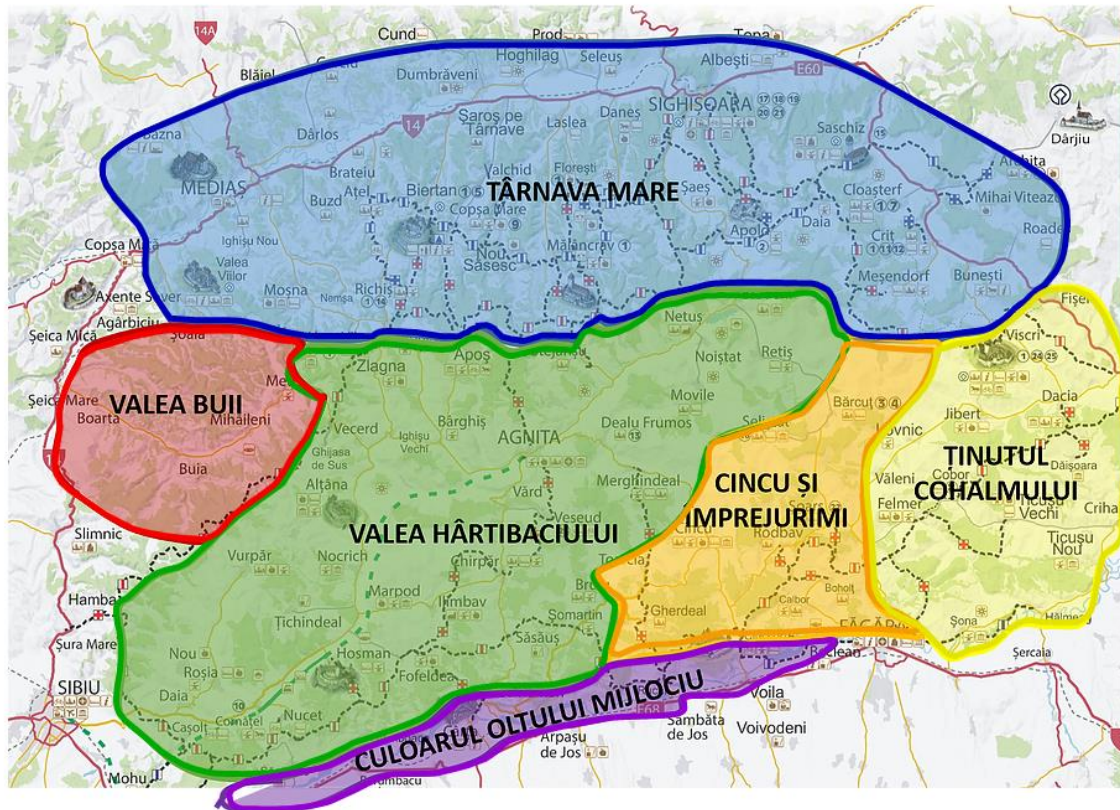
Figure 26: Regions Interactive Page

The graphics were created in a program called Inkscape, which is a free open source vector editor, which can be downloaded from the following link:
https://inkscape.org/release/inkscape-1.0/
Vector art can be created either freehand, with shapes, or through tracing in Inkscape. In this case, I imported the image of the map into a document (using File>Import), and then traced the regions using the Bezier Curves and Straight Lines tool (found in the left toolbar). If you want to shade the graphic, it is important to have closed shapes. This can be ensured by clicking the square at the first point of the drawing, which should turn red when hovered over. In order to color the shapes, I changed to the Selection tool (left toolbar) and selected the shape, then opened the Fill and Stroke panel, which is accessed using the "Edit objects' color" button in the top toolbar. In the Fill tab, you can edit the interior color of the object. First, select the fill style (generally flat color or a gradient) and then select the color. In the Stroke paint tab, you can edit the outline. First, select the stroke paint style (generally fill) and then select the color. In the Stroke style tab, you can edit the properties of the outline, including the width, and the marks. Text can also be added, using the Create and edit text objects tool (left toolbar). Text objects can be edited by opening the Text and Font panel, by clicking the "View and select font family" button in the top toolbar. In the Font tab, the font family, style, and font size can be edited, but to

set these, you must click "Apply" after selections are made. Text can be grouped with the shape by dragging a box over both (when using the Select tool), right clicking, and then selecting Group in the menu. For the interactive map, I used the map provided as the background. Since it already had regions labelled and highlighted, for the default vector graphics (no hover), I did not set fill or add text, then for the hover vector graphics, I set the fill color to the same color as the outline, and added the name of the region in bold. Each vector graphically was saved as a separate scalable vector graphic (.svg) file after reducing the page size to the minimum size around the graphic, by going to the Document Properties menu (File > Document Properties) and under Page Size, go to the Custom size box, then click the "+" button next to "Resize page to content". A button which says "Resize page to drawing or selection" will appear, and when clicked, the page will automatically decrease in size to the size of the image. It may be useful to rotate the image (vector art can be rotated back into position in Wix), to decrease the border of the page around the graphic. To rotate a graphic, use the Select tool and click on an image twice. The first time, arrows pointing outwards should appear in a box around the image, the second time, the arrows should be pointing towards each other. But clicking on one of the arrows that is at a corner, the image can be rotated.

Once the vector art is created, it can be imported into Wix so that it can be used. On the page that it is to be used on, it should be added and moved into place, with the items for hover placed in front of the default items. It is recommended that before putting items in front of others, the ID in the Properties panel (made visible for items that you select when Dev Mode is enabled) for each item be set so that code can easily be created. For items that should only be visible on hover, check the "Hidden on load" box in the Properties panel, as shown in Figure 27. For default vectors, add a function for the onMouseIn event, and for hover vectors, add a function for the onMouseOut event, by clicking the "+" button that appears when hovering over the row in the Properties panel, and then clicking enter when the text appears. These functions should now be visible in the page code panel.
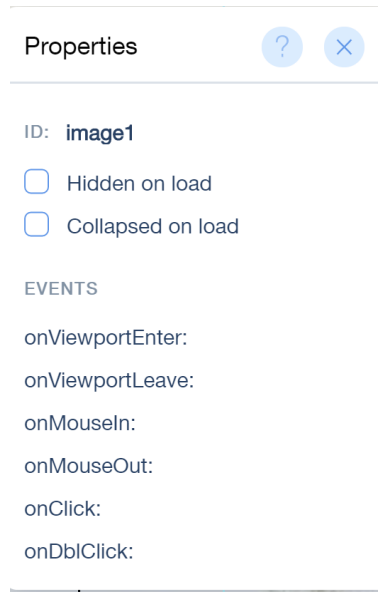
Figure 27: Properties Panel - Hidden on Load

For each mouseIn function, set the hover vector graphic to show, by adding the following line of code, where hoverID is the property ID of the corresponding hover vector graphic:

```
$w("#hoverID").show();
```

And for each mouseOut function, set the hover vector graphic to become hidden again, by adding the following line of code, where hoverID is the property ID of the hover vector graphic:

```
$w("#hoverID").hide();
```

If the vector graphics should link to static pages, set those as normal by clicking the "Link" button that appears when the graphic is selected, and choosing the right page in the menu that appears. Do this for both the hover graphic and the default graphic, to ensure that the mobile version works, since users will not be able to "hover." If you are linking to dynamic item pages, these should be accessed through the database where the path is stored. Add the database with the items that will be linked to the page, by going to the "Add" button on the left toolbar, then select Contact Manager > Dataset. Set the dataset to the correct dataset by clicking on it and choosing Settings. Then, change the ID in properties of the dataset, and add a onReady event function. The following block of code can be added to the onReady function in order to set the links correctly, where datasetID is the property ID of the dataset, fieldKey is the field key for the identifying field in the database, itemName_x is the value stored in the column that fieldKey corresponds to for item x in the database, defaultID_x is the property ID of the default vector graphic corresponding to itemName_x, hoverID_x is the property ID of the hover vector graphic corresponding to itemName_x, and linkField is the field key of the column in the database that stores the dynamic item page links, and ensuring that a case is added for each item in the database that should be linked:

```
let count = $w("#datasetID").getTotalCount();
```

```
      $w("#datasetID").getItems(1, count)
           .then( (result) => {
                let items = result.items;
                items.forEach((item) => {
                      switch(item.fieldKey) {
                            case itemName_1:
                                  $w("#hoverID_1").link =
item["linkField"];
                                  $w("#defaultID_1").link =
item["linkField"];
                                  break;
                            case itemName_2:
                                  $w("#hoverID_2").link =
item["linkField"];
                                  $w("#defaultID_2").link =
item["linkField"];
                                  break;
                      }
                })
           });
```

2.5.1 Making the Regions Map Interactive Page Multilingual

Currently, the regions interactive map is not multilingual, as the region names only appear in Romanian. In order to make this multilingual, an additional map graphic with the new language must be added, and additional hover vector graphics must be added. First, the following import statement must be added to the top of the code:

```
import wixWindow from 'wix-window';
```

To make the correct map graphic appear for different language versions, select "Hidden on load" in the Properties panel for each map graphic, and change the ID on each so that the first part is identical, and then append "_lang" at the end where lang is the language code for the corresponding language. Identify the default page function in the code, it should look like:

```
$w.onReady(async function () {

});
```

Inside this function, add the following two lines of code, where mapName is the common part of the property ID that all of the map images share:

```
let language = wixWindow.multilingual.currentLanguage;
$w("#mapName_" + language).show();
```

This should make the correct map appear based on the language a user has selected. In order for the hover text to work, the property IDs for the hover graphic images should be formatted in the same way as the maps, where there is a common part which is the same for each corresponding graphic, and a language code at the end, in the format "_lang" where lang is the language code. A mouseOut event function must be added for each vector, and each should be hidden on load, and positioned in the same place in front of all other elements. For the mouseIn functions, add the following line:

```
let language = wixWindow.multilingual.currentLanguage;
```

Also change the following line, where hoverID is the property ID of the corresponding hover graphic:

```
$w("#hoverID").show();
```

To the following, where hoverID is the common part of the property ID of the corresponding hover graphic:

```
$w("#hoverID_" + language).show();
```

In the code for the mouseOut events, which should be in the following format, where hoverID is the property ID of the hover graphic:

```
$w("#hoverID").hide();
```

Ensure that the full hoverID is present (including the language code).

In order to add additional languages to the website, additional maps and hover graphics will need to be added to this page. For additional maps, the property ID of the new map just needs to be set in the same format as the other maps, and the map needs to be set to hidden on default and placed in the correct location, behind all other elements. For additional hover vector graphics, the property ID of the new graphics must be set in the same format as the other hover vector graphics, and they should be placed in the same way, and hidden on load. For each, a new mouseOut event function should be created, with the same format of code inside as the other mouseOut events. No changes need to be made to the mouseIn events.

Chapter 3: Future Features to Develop

3.1 Google Analytics

The directions for adding Google Analytics can be found at the following link. First you will need to make a Google Analytics account.
https://support.wix.com/en/article/adding-your-google-analytics-tracking-id-to-your-wix-site

3.2 Site Addressed Email

The directions for setting up a professional business email can be found at this link:
https://www.wix.com/business/email-address

3.3 Booking Platform

A Booking platform is part of the Ascend toolbox purchased by business owners. It was decided that the Destination Management Team was not ready to manage a booking platform on top of all of its other responsibilities, but it is something they would like to consider in the future. Directions on how to do this can be found along with extensive tutorials via Wix's YouTube channel. The Wix Training Academy has many tutorials for most wix functions and can be found at this channel, https://www.youtube.com/channel/UCskvMW8-fNG7Md0Bsl_-ZTg. Additionally, there is an extensive forum network of fellow wix users who often provide code examples using Wix's corvid interface. In summary there is a near endless amount of things to accomplish using wix provided you do enough research to design a workaround.

3.4 SEO

Search Engine Optimization will be very important to this website, in order to ensure that the site appears high in results on search engines. Wix has specific tools for SEO and has guidance on how to apply these tools effectively to help its users succeed with their businesses. A general resource for using Wix's SEO tools can be found here:
https://support.wix.com/en/article/search-engine-optimization-seo
It explains how to use Wix SEO Wiz will walk you through a step-by-step process of setting up SEO, and it also explains some additional steps that will assist with SEO, such as adding accessibility functions, and submitting the sitemap to Google. Wix SEO also supports applying different SEO settings for different language versions of the website, ensuring that people can find the website regardless of their search language. Details about customizing SEO for secondary languages can be found in this article:
https://support.wix.com/en/article/seo-for-multilingual-sites
Additionally, Wix also supports dynamic SEO metadata assignment for dynamic pages. This allows you to attach database columns for dynamic pages to customize the metadata for each item page. Instructions on assigning dynamic metadata for dynamic pages can be found in the following article:
https://support.wix.com/en/article/working-with-seo-settings-for-dynamic-pages

3.5 Amazon Model

In order to encourage website visitors to explore the website visitors to explore different topics, an "Amazon Model" can be implemented on dynamic item pages with items from other

databases that share a location with the page's item. A limited example of this can be found on the Castles and Citadels item pages, where there is a list of UNESCO World Heritage sites that are located in the same place as the Castles and Citadels item, as shown in Figure 28. These locations are shown on a repeater which shows four items at once in a single row. If there are more than four relevant items, they can be navigated to using arrows on both sides which scroll the repeater. Clicking on items will bring you to the item pages for the related item. While this example only includes the UNESCO World Heritage sites, a repeater can be added for any different dataset of items which have locations.
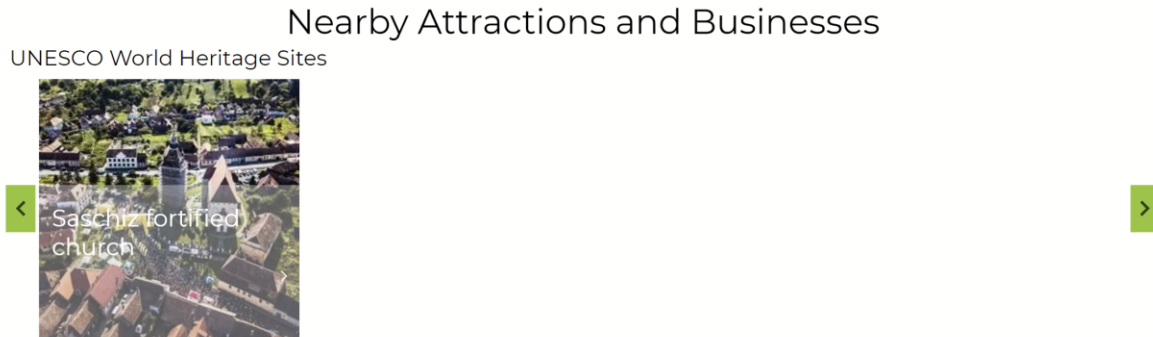

Figure 28: Amazon Model on Castles and Citadels Item Page

For this functionality to be added, first a locations column must be present in the database used for the dynamic item page, as well as for any databases you want to add repeaters for related items. The locations column should be named "Location" with the field key "location" and should be of field type "Reference" where the referenced collection is "Villageswithfortifiedchurches" as seen in Figure 24. In the locations column, the correct village can be selected by clicking on the down button and searching for the corresponding village and selecting the right one, shown in Figure 25. Once this column is added, go to the dynamic item page and add a header describing the collection, a repeater, and left and right buttons, and a section header. These elements can be copied from the Castles and Citadels Item page, in order to ensure consistency in format. Change the property ID for each repeater header, repeater (and repeater container, textbox and button), and forward and back button to something unique, as all of these items will need to be referenced in the code.

In order to connect the repeater properly, Wix Code must be used. After opening the code for the page, ensure that the following lines are at the top of the code:

```
import wixWindow from 'wix-window';
import wixData from 'wix-data';
```

In addition, for every repeater you are adding, add the following line which declares a variable to store the data for that repeater below the import statements, where var is a unique name:

```
let var = {};
```

We will also declare a function to create the fields of the repeater, which will be filled later, make the name distinct for each dataset, like so, where makeUNESCORepeater is the name of the function:

```
export function makeUNESCORepeater() {

}
```

Next, the data for the repeater must be fetched from the relevant dataset. To do this, first find the onReady function for the page, which will look like:

```
$w.onReady(async function () {

});
```

Inside this function, add the following line of code:

```
let location = $w("#itemDatasetID").getCurrentItem().location;
```

Also add the following section of code for each repeater being added, where itemDatasetID is the property ID of the dynamic item page dataset, Dataset is the key for the database that contains the data that will be displayed in the repeater, var is the name of the variable declared above to store the data for the repeater, repeaterID is the property ID for the repeater, makeRepeaterFunction is the name of the function created previously to create the fields of the repeater, forwardButtonID is the property ID of the forward button, headerID is the property ID of the repeater header, and backButtonID is the property ID of the back button:

```
wixData.query("Dataset")the key for the dataset that will be
displayed in the repeater,
     .contains("location", location)
     .limit(4)
     .find()
     .then( (result) => {
          if (result.length > 0) {
               var = result;
               $w("#repeaterID").data = var.items;
               makeRepeaterFunction();
               if (var.hasNext()) {
                    $w("#forwardButtonID").enable();
               }
          } else {
               $w("#repeaterID").collapse();
               $w("#headerID").collapse();
               $w("#backButtonID").collapse();
```

```
                    $w("#forwardButtonID").collapse();
            }
      })
```

In the function made previously to fill the repeater, add the following code, where repeaterID is the property ID of the repeater, textID is the property ID of the text field in the repeater, titleKey is the field key in the database with the data that is filling the repeater which is the identifying information is located (use the techniques from 2.3 if necessary to make it multilingual), buttonID is the property ID of the button in the repeater, linkKey is the field key in the database with the data that is filling the repeater for the item page link, pictureKey is the field key in the database with the data that is filling the repeater for the preview image, and containerID is the property ID of the container (background) in the repeater:

```
let language = wixWindow.multilingual.currentLanguage;
$w("#repeaterID").forEachItem( ($item, itemData, index) => {
      $item("#textID").text = itemData["titleKey"];
      $item("#buttonID").link = itemData["linkKey"];
      if (itemData.pictureKey !== undefined) {
            $item("#containerID").background.src =
itemData.pictureKey;
      }
});
```

Next, in order to make the buttons usable, two functions must be added to control their actions when they are clicked. For both buttons, add an onClick event function using the Properties panel. In the click event function for the forward button, add the following code, where var is the name of the variable declared above to store the data for the repeater, repeaterID is the property ID of the repeater, makeRepeaterFunction is the name of the function created previously to create the fields of the repeater, backButtonID is the property ID of the back button and forwardButtonID is the property ID of the forward button:

```
var.next()
      .then( (results) => {
            var = results;
            $w("#repeaterID").data = var.items;
            makeRepeaterFunction();
            $w("#backButtonID").enable();
            if (!(var.hasNext())) {
                  $w("#forwardButtonID").disable();
            }
      });
```

Similarly, in the click event function for the back button, add the following code, where var is the name of the variable declared above to store the data for the repeater, repeaterID is the property ID of the repeater, makeRepeaterFunction is the name of the function created previously to create the fields of the repeater, backButtonID is the property ID of the back button and forwardButtonID is the property ID of the forward button:

```
var.prev()
     .then( (results) => {
          var = results;
          $w("#repeaterID").data = var.items;
          makeRepeaterFunction();
          $w("#forwardButtonID").enable();
          if (!(var.hasPrev())) {
               $w("#backButtonID").disable();
          }
     });
```

3.6 The Event Calendar

In order to update this calendar, you must first enter the "Events" database under the collections tab on the left-hand menu. Once there you will export the data as a .csv file. This should export it to Microsoft Excel. You can then take this Excel document and upload it to a Google Calendar or outlook calendar. This Google or outlook calendar can then be linked to the calendar on the home page so that they each display the same events. The tricky part here will be updating the calendar when new events are added. My recommendation would be to filter the databases by event date, and then only export a select distance into the future. This will leave very minimal events to be added manually to the calendar and make it so that you need only export once per selected time period. For any further questions, simply contact the wix help center via email and they will more than likely respond within the next day or so.