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Implementing Multi-Criteria Analysis in the Selection of AUCHS for the Integration of Digital Technologies into the Tourism Offering: The Case of MeDryDive

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Abstract: Focusing on both physical and virtual accessibility, this paper presents the methodology developed by MeDryDive for the selection of AUCHS (Accessible Underwater Cultural Heritage Sites) in Greece, Italy, Croatia, and Montenegro. MeDryDive is a project that aims at the promotion of AUCHS in the Mediterranean as distinctive tourism destinations through personalized dry dive experiences. The candidate sites are assessed in order to be included in the transnational thematic tourism product “Dive in the Past” and promoted through Creative and Cultural Industry (CCI) applications, including a Serious Game, Augmented and Virtual Reality applications, and promotional videos, all developed in the context of the project. The main goal of the methodology is to meet the requirements for both the sustainability of the thematic tourism product and the digital applications’ development. The assessment of AUCHS is based on specific criteria that result from setting weighing factors and classifying indicators as either critical or non-critical. The criteria are categorized into core (feasibility) criteria and complementary (appropriateness) criteria for determining the total level of readiness. This set of criteria enables site selection through an elimination method, identifying the suitable pilot and follow-on sites for the integration of digital technologies into the tourism offering.

Keywords: accessible underwater cultural heritage sites (AUCHS); site selection methodology; multi-criteria analysis; CCI integration; dry dive



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1. Introduction

The responsible, non-intrusive accessibility and promotion of the Underwater Cultural Heritage (UCH), according to the UNESCO Convention of 2001 [1,2], contributes significantly to its protection, in the sense that cultural remains help preserve human inheritance for future generations. UNESCO [2] also supports the responsible promotion of UCH for tourism development purposes, provided that the protection and management of the site is ensured in a responsible way. The general public’s awareness and participation are also considered key parameters for the protection of UCH [3], granted that the more people get to know about their heritage, the more likely they will be thoughtful about its protection. When developing strategies for the promotion of UCH, it is therefore crucial to valorize the underwater cultural assets in a responsible way and raise public awareness about their value and need for their protection [4].

Diving tourism [5–7] is a developing activity in the alternative tourism sector and tends to attract many travelers who wish to combine recreational diving during their holiday. The number of divers worldwide reaches more than 28 million, and there are over 128 thousand PADI members in more than 186 countries and regions around the world [8], while in Europe alone there are over 3.5 million divers. These numbers indicate a high interest in diving tourism, which is also a driver for the development of alternative services in the diving tourism sector. Such developments can favor the promotion of UCH and enhance sustainable tourism development in coastal or island tourism destinations [9].

On that note, there have been recently developed initiatives for the sustainable tourism development in coastal regions of the Mediterranean [10], among which are EU-co-funded projects that aim at the protection and promotion of Underwater Cultural and Natural Heritage through the integration of innovative technologies. Indicatively, the BLUEMED project has introduced a model for the sustainable management of underwater cultural and natural heritage and for raising public awareness by enhancing accessibility to both divers and non-divers. This is enhanced with the operation of Knowledge Awareness Centers (KACs), a pioneer combination of exhibitions and information centers, and the development of an Augmented and a Virtual Diving System. The MAREBOX project, from a different perspective, integrates cutting-edge technologies for the creation of an art exhibition on the topic of underwater culture, aiming at a wider audience.

Pioneer efforts for the valorization of UCH have certain limitations [11] though, that may deteriorate such a potential and need to be considered. These limitations may regard the physical or legislative accessibility at the sites, the engagement of stakeholders, or the integration of innovative technologies for the promotion of UCH. Recent technological advancements have allowed virtual access to remote underwater sites to those who are not able to dive for different reasons (great depth, lack of training, certain physical disabilities, etc.) [12,13]. Moreover, digitalization in cultural tourism is a rising trend that upgrades the travel experience and enhances the promotion of both the underwater sites and the on-land tourism destinations nearby [14]. However, the integration of CCI technologies (Creative Cultural Industry) for the promotion of UCH is a new field that needs to build on this cross-border knowledge in a way that such good practices are effectively implemented to enhance public awareness and sustainable tourism development [15].

The EU-co-funded MeDryDive project (COS-TOURSYN-2018-3-01), considering the above asymmetries, focused on the promotion and valorization of Accessible Underwater Cultural Heritage Sites (AUCHS) in the Mediterranean and designed a transnational thematic tourism product. “Dive in the Past” includes various tourism packages that combine a variety of activities and different cultural destinations in the countries of the project. MeDryDive has integrated CCI applications for the promotion of the selected pilot sites and has developed a Serious Game, an AR (Augmented Reality) leaflet that converts static photos into video views of the underwater sites, a VR (Virtual Reality) app that allows by placing a smartphone into cardboard glasses to watch a virtual presentation of the 3D reconstruction of the sites, as well as promotional videos of all sites included in the tourism product. The outcomes of MeDryDive promote the destinations near the selected AUCHS to enhance sustainable tourism development in the area and make UCH accessible to all, especially non divers. In this way, not only is visitors’ experience upgraded, but public awareness on the value of UCH is also raised in a fun way. What is more, an AUCH site highlighted as the main tourism attraction of the respective area can attract tourists, both divers and non-divers, to visit not only the underwater site but also all other attractions in the area and enhance sustainable tourism development.

This paper will focus on the methodology developed by MeDryDive for the assessment of different UCH sites in Greece, Italy, Croatia, and Montenegro to be selected as the pilot sites of the project. The evaluation criteria set are the basis of the proposed methodology, which can be replicable by other efforts with similar objectives, granted they are adapted to the specific features and particular needs of the area to be highlighted as a thematic tourism destination.

2. The Methodology

The methodology for the selection of AUCHS for the design of a thematic tourism product integrating CCI applications was built upon indicators that defined the selection criteria. These criteria were classified into two categories, as critical and non-critical criteria, based on the relative significance of the indicators. The classification of the criteria was followed by a two-step Assessment Process (Feasibility Assessment and Appropriateness

Assessment), which resulted in only one AUCH site for each country included in the tourism product (Figure 1).

Assessment Methodology

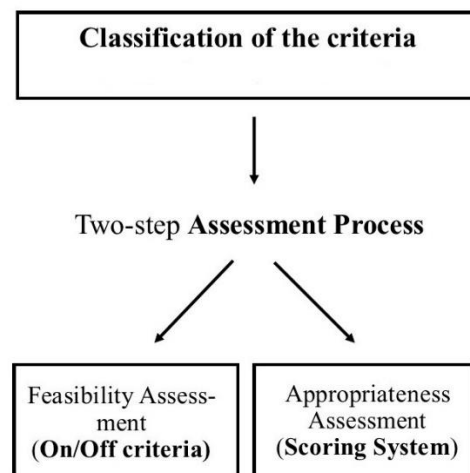


Figure 1. The scheme of the assessment methodology that was used for the selection of mature AUCH sites (own elaboration).

2.1. Limitations of the Selection Criteria

The selection criteria were based on certain limitations that had been defined according to the project goals. These limitations were crucial as a preliminary step of the methodology, as they determined the assessment of all candidate sites and are summarized as follows:

1. The pilot site selection involved the MED countries of the project.
2. There would be only one selected pilot AUCHS per country.
3. Due to the project limited duration (compared to the time needed for the creation of a 3D model in terms of data collection and processing), at least three of the selected pilot sites should have had available 3D models for the development of the Serious Game and the Augmented-Virtual Reality apps.
4. A modern AUCHS could be selected as pilot site if the selection of an ancient AUCH site was not possible due to limitations.

2.2. Classification of the Criteria

Once the project objectives were set and all limitations were considered, the selection criteria were then classified as critical and non-critical/complementary (Figure 2). Since the goal was to create a thematic tourism product, the critical criteria defined a Feasibility Assessment and an Elimination Process based on the needs for the development of the specific product.

Analysis of the Criteria

The parameters that define the level of maturity of a site to be included in the thematic tourism product were considered as critical criteria. In other words, if a candidate destination did not fulfill all critical criteria set, it could not be considered as a pilot site. An analysis of the critical criteria follows below:

- The Accessibility of the Site refers both to the national legislative framework in force regarding access at the site to recreational divers and the physical accessibility conditions. If a site is not accessible by national or international law, it cannot be included in the assessment process. (In order to avoid any misunderstanding with the legislative frameworks, since for each country there are many laws that define these sites on the cases displayed, there would only be reference to the laws. However,

their validity and effectiveness have already been verified.) Accessibility also has physical limitations, such as diving competence and training of divers, depth of the site, visibility underwater, preservation conditions of the remains, etc.

- The availability of a 3D model of the site is crucial for the development of the Serious Game and the AR and VR apps integrated in the tourism product [16]. The 3D reconstruction is considered as a critical criterion as it entails time-consuming processes such as data collection on site, photogrammetry, and data processing via computer software analysis to create the digital model of the site.
- Appropriate infrastructure on land close to the site to host the MeDryDive CCI apps is another critical criterion. The availability of such infrastructure to host the CCI applications and equipment is important for the promotion of the tourism product and needs to be relatively close to the site to attract visitors, thus such facilities could be considered as an add-on tourism attraction for the destination.
- The availability of tourism infrastructure for sustainable tourism development in the area aims at meeting the visitor's expectations. Such infrastructure includes health care (e.g. hospitals), banking facilities (ATM, banks), and other useful services (telecommunications, car rental, etc.). In addition, accommodation facilities such as hotels or campsites and food services such as restaurants, supermarkets, and sports facilities can cover the basic needs of the visitors during their stay.
- Easy access to the area is also important for the promotion of the site and by extension the sustainability of the thematic tourism product. Accessibility by air, land, and sea regards modern road network, ports, marinas, airports in the area, as well as convenient interconnections among the different means of transport. A tourism destination, however interesting it is, might not attract travelers that prefer easily accessible destinations. Therefore, easy accessibility and mobility are key factors to select a site.
- Diving centers are crucial to the sustainability of the tourism product and the operation of the site as they can offer diving equipment and diving services to the visitors (training, guidance along the diving trail), while they can help monitor the site—depending on the management framework of the site. Diving centers can offer guided diving tours at the AUCHS, tours with glass bottom boats or snorkels in shallow depths, thus they can host the CCI apps in their facilities and promote the tourism product and the site.

Classification of the criteria

<u>Critical criteria:</u>	<u>Non-critical/Complementary criteria:</u>
a. Accessibility of the site	a. Other activities and attractions
b. Availability of a 3D model of the site	b. Human capital for the development of cultural tourism
c. Infrastructure to host the apps	c. Stakeholder's engagement
d. Tourism infrastructure for the sustainable tourism development in the area	d. Attractiveness of the site.
e. Access to the destination	
f. Diving centers to provide services	

Figure 2. The selection criteria divided into critical and complementary (own elaboration).

The non-critical criteria are the next step in the elimination process, which help narrow down the candidate sites further to the final one selected. These are as follows:

- It is important that the AUCHS to be selected is linked to the surrounding landscape and to any activities at the tourism destination that would engage the interest of the tourists and prolong their stay in the area. Both blue and green activities on land and at sea can be included in the tourism product's offered packages, as well as other tourism attractions at the destination.
- It is also significant to invest in the Human Capital for the development of underwater cultural tourism. The increasing rise in sustainable tourism requires building the competencies and skills of the linked human capital for a cultural product to become competitive and attract more visitors. The professionals in the tourism sector need to promote cultural and natural assets resources acknowledging that cultural tourism products should be treated differently from the mass tourism products as they address a more targeted audience with specific needs and demands.
- Stakeholders' engagement in the promotion of the tourism product is crucial for its integration in the local community and its sustainable development. Stakeholders to be involved can be indicatively universities, research organizations, national/regional/local public authorities, development agencies, professional associations, diving centers, tourism service providers, tour operators and travel agencies, etc.
- Other attraction features in the area can also highlight a destination as attractive and popular among tourists. These features can be cultural heritage monuments or cultural experiences, any distinctive natural beauty, recreational opportunities, and even better, a combination of all.

2.3. Assessment Process

Once the criteria had been set, the Assessment Process followed under the condition that in case a site did not meet one of the critical criteria, it would be eliminated from the list and not be further considered. Table 1 is an example of how each candidate site would be assessed at a first level based on the critical criteria and shows how Sites 2 and 3 could continue in the assessment as they met all critical criteria.

Table 1. A table of the critical criteria based on which all candidate sites would be evaluated separately and an example of how the sites can be excluded or move on with the assessment (own elaboration).

	Site 1	Site 2	Site 3	Site 4
Accessibility	✓	✓	✓	✓
3D model	x	✓	✓	x
Infrastructure to host the apps	✓	✓	✓	✓
Tourism infrastructure	✓	✓	✓	✓
Access to the area	✓	✓	✓	x
Other attractions	✓	✓	✓	✓
Diving centers	✓	✓	✓	x

The critical criteria would narrow down the candidate sites as seen on Table 1, and in case that there was more than one site that met all criteria, the Appropriateness Assessment based on a scoring board system (Table 2) would define the final selected site. The scoring board system assessed the sites that continued until this second level of evaluation with a scale from 1 to 5, where 1 would indicate the less suitable and 5 the most suitable in terms of appropriateness. In the end, the site with the highest score would be selected as the pilot site. This two-step elimination process ensures that the result is as objective, complete, and inclusive as possible.

When applying this methodology in the context of the MeDryDive project, each project partner provided the information and results for the sites in their respective countries.

Table 2. The scoring board that was used for the Appropriateness Assessment in the selection process (own elaboration).

	1 (Less Suitable)	2	3	4	5 (More Suitable)
Touristic potential (Other activities and attractions)					
Human Capital for the development of cultural tourism					
Stakeholders' engagement					
Uniqueness of the site					

3. Results

3.1. The Case Studies Briefly Examined

At first, for each country/case there was a list created with all the UCH sites that were accessible based on the national legislative framework. Then, each site on the list was assessed according to the critical criteria table (Table 1), and in case there was more than one site that met all critical criteria, the scoring board system with the non-critical/complementary criteria was applied on a second level of assessment (Table 2).

3.1.1. Greece

According to the legislative framework of Greece [17–20], there are 12 declared AUCHS, and they are displayed in Table 3 below:

Table 3. List of the AUCHS in Greece (own elaboration).

a/a	Name	Location	Dating	Find
1	Peristera	North Sporades, Alonissos	Last quarter of the 5th cent. B.C	Shipwreck
2	Kikinthos	West Pagasetic Gulf	Byzantine times: 12th–13th cent. AD	Shipwreck
3	Cape Glaros	West Pagasetic Gulf	(1) Hellenistic period (3rd–2nd cent. BC), (2) Early Roman period (1st–2nd cent. AD) (3–4) Middle and Late Byzantine times (12th–13th cent. AD)	Possible various remains of Shipwrecks.
4	Cape Telegrafos	West Pagasetic Gulf	4th cent. AD	Shipwreck
5	Tselios	North Sporades	Hellenistic	Shipwreck
6	Skantzoura	North Sporades	Classical	Shipwreck
7	Ag. Petros	North Sporades	Byzantine	Shipwreck
8	Fagrou	North Sporades	Classical	Shipwreck
9	Methoni Sarcophagi	Peloponnese	2nd cent. AD	Shipwreck
10	Methoni columns	Peloponnese	1st cent. AD	Shipwreck
11	Lavreotiki	Attica	-	Shipwreck
12	Makronisos	Attica	Mid- Hellenistic- Post Roman era	Shipwrecks

The 12 AUCHS were subject to the first level of elimination assessment based on the critical criteria, as seen in Table 4 below.

As clearly shown on Table 4, there was only one site that met all the criteria, and therefore the second-level assessment process was not necessary. As a result, the site that was selected in Greece was the ancient shipwreck of Peristera near Alonissos Island in Northern Sporades. The visitors can see the cargo of a shipwreck that consists of a mound

of amphorae (25 × 12) on the sandy seabed that dates back to 425 to 420 BC [21]. It lies at a depth of 27 m, and since the August 2020, the shipwreck of Peristera has been the first Accessible Underwater Archaeological Site in Greece open for recreational divers and has helped Alonissos island gain a prominent touristic interest ever since [22].

Table 4. The assessment board with all candidate sites in Greece evaluated based on the critical (on/off) criteria (own elaboration).

	Peristera	Kikinthos	Cape Glaros	Cape Telegraphos	Tselios	Skantzoura	Aghios Petros	Fagrou	Methoni Sarcophagi	Methoni Columns	Lavreotiki	Makronisos
Accessibility	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3D model	✓	✓	✓	✓	×	×	×	×	×	×	×	×
Infrastructure to host the apps	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×
Tourism infrastructure	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×
Access to the area	✓	✓	✓	✓	✓	×	×	×	✓	✓	×	×
Other attractions	✓	×	×	×	✓	✓	✓	✓	✓	✓	×	×
Diving centers	✓	×	×	×	✓	✓	✓	✓	✓	✓	×	×

3.1.2. ITALY

According to the legislative framework for the accessible UCH sites in Italy [23], five sites were selected to be included in the elimination process, as seen in Table 5 below.

Table 5. List of the AUCHS in Italy (own elaboration).

a/a	Name	Location	Dating	Artifact
1	Marine Protected Area of Capo Rizzuto	Island of Capo Rizzuto (Crotona, Calabria)	3rd cent. AD	Shipwreck
2	Underwater Park of Baiae	Pozzuoli and Baia (Naples, Campania)	1st cent. BC and the 4th cent. AD	Submerged town
3	Egnatia	Fasano (Brindisi, Puglia)	Roman times	Submerged town
4	Levanzo Isle	Egadi Islands (Trapani, Sicily)	Punic-roman age	Shipwrecks
5	San Pietro in Bevagna	Manduria (Taranto, Puglia)	3rd cent. AD	Sarcophagi

Unlike Greece, in Italy's case as seen in Table 6 above, two sites met the critical criteria set and so both had to run the scoring board system to conclude which site was the most appropriate to be selected. These were the Archaeological Park of Baiae in Napoli, Campania and San Pietro in Bevagna in Taranto, Puglia.

Based on the information presented on Tables 7 and 8 above, the site with the highest score (24 out of 25) was the Archaeological Park of Baiae, and therefore, it was selected as the pilot site in Italy. The selected pilot site is a 2nd century AD underwater Roman city that lies at 5m depth. It is located on the northwestern coast of the Bay of Pozzuoli in Naples. Baiae was a famous seaside town much appreciated in antiquity for its natural beauty and thermal waters that sank gradually since antiquity. At the Underwater Archaeological Park of Baiae, divers can see the remains of luxurious villas and other buildings and structures of a Roman city [24–26]. The area is a well-known tourist attraction site with the necessary tourism infrastructure to welcome divers and non-divers [27,28].

Table 6. The assessment board with all candidate sites in Italy evaluated based on the critical (on/off) criteria (own elaboration).

	Capo Rizzuto	Baiae	Egnatia	Levanzo Isle	San Pietro in Bevagna
Accessibility	×	✓	✓	×	✓
3D model	✓	✓	✓	✓	✓
Infrastructure to host the apps	✓	✓	✓	✓	✓
Tourism infrastructure	✓	✓	✓	✓	✓
Access to the area	✓	✓	✓	✓	✓
Other attractions	✓	✓	✓	✓	✓
Diving centers	✓	✓	×	✓	✓

Table 7. Score board table of the Archaeological Park of Baiae in Napoli, Campania, Italy (own elaboration).

	1 (Less Suitable)	2	3	4	5 (More Suitable)
Touristic potential (Other activities and attractions)					×
Human Capital for the development of cultural tourism					×
Stakeholder's engagement					×
Uniqueness of the site				×	

Table 8. Score board table of San Pietro in Bevagna in Taranto, Puglia, Italy (own elaboration).

	1 (Less Suitable)	2	3	4	5 (More Suitable)
Touristic potential (Other activities and attractions)					×
Human Capital for the development of cultural tourism			×		
Stakeholders' engagement			×		
Uniqueness of the site				×	

3.1.3. CROATIA

With over 400 underwater archeological sites and museums in Croatia, only 10 sites were eligible to be included in the elimination process, based on the Croatian legislative framework for UCH sites [29], as seen on Table 9.

Table 9. List of the AUCHS in Croatia selected for evaluation (own elaboration).

a/a	Name	Location	Dating	Artifact
1	Cape Sorinj	Island of Rab	2nd cent. BC.	Amphoras in situ
2	Letavica	Island Pag	1st cent. BC	Amphoras in situ
3	Vlaška Mala	Island Pag	1st cent. BC	Amphoras in situ
4	Gnalić	Island of Gnalić near Pašman	16th cent. 1583 AD	Shipwreck, Venetian ship
5	Juro	Island Žirje	4th cent. BC.	Around 70 amphoras and vessels from the ship are on stone seabed
6	Shallows St. Pavao	Island Mljet	16th cent. AD.	Shipwreck with cargo Iznik ceramics

Table 9. Cont.

a/a	Name	Location	Dating	Artifact
7	Bay of Suđurađ	Island Šipan	16th cent. AD.	Shipwreck of ship belonging to the fleet of Republic of Dubrovnik.
8	Cape Ratac	Island Koločep	16th–17th cent. AD.	Shipwreck of ship with all cargo preserved on the see bottom (glass vessels, windows)
9	Dolia shipwreck	Island of Supetar near Cavtat	1st cent. AD.	Shipwreck with 10 dolia on the seabed
10	Amphora shipwreck	Island of Supetar near Cavtat	3–4th cent. AD.	Shipwreck with amphora cargo on the seabed

The first level of elimination as shown on Table 10 excluded seven sites that did not meet the critical criteria, and three sites were further assessed in the scoring board system for the final selection of the pilot site in Croatia, as shown on Tables 11–13 below:

Table 10. The assessment board with all candidate sites in Croatia evaluated based on the critical (on/off) criteria (own elaboration).

	Cape Sorinj	Letavica	Vlaška Mala	Gnalić	Juro	Shallows St. Pavao	Bay of Suđurađ	Cape Ratac	Dolia Shipwreck	Amphora Shipwreck
Accessibility	×	×	✓	✓	✓	✓	×	×	✓	✓
3D model	×	✓	✓	✓	✓	✓	✓	×	✓	✓
Infrastructure to host the apps	×	✓	×	✓	✓	×	×	×	✓	✓
Tourism infrastructure	×	✓	×	✓	✓	×	×	×	✓	✓
Access to the area	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Other attractions	×	✓	×	✓	×	×	✓	✓	✓	✓
Diving centers	✓	✓	✓	✓	×	×	✓	✓	✓	✓

Table 11. Score board table of Gnalić near Pašman, Croatia (own elaboration).

	1 (Less Suitable)	2	3	4	5 (More Suitable)
Touristic potential (Other activities and attractions)					×
Human Capital for the development of cultural tourism					×
Stakeholder's engagement					×
Uniqueness of the site					×

As a result, the selected pilot site was the shipwreck located off the island of Gnalić near Pašman, with a score of 25 out of 25. The pilot site is the merchant ship “Gagliana Grossa” that sank in November 1583 A.D and lies at a depth of 13 to 27m. A rich collection of rare and unique artifacts from the cargo has been recovered, while at the site, citizen science tourism missions are organized [30]. In the area, there is all the necessary tourism infrastructure available (diving centers, cultural and tourist on-land infrastructure) and the promotion of the tourism product through the CCI apps developed aims at highlighting the site as a cultural attraction in the area.

Table 12. Score board table of the Dolia shipwreck, at Supetar near Cavtat, Croatia (own elaboration).

	1 (Less Suitable)	2	3	4	5 (More Suitable)
Touristic potential (Other activities and attractions)					×
Human Capital for the development of cultural tourism					×
Stakeholders' engagement					×
Uniqueness of the site					×

Table 13. Score board table of the amphora shipwreck, Supetar, near Cavtat, Croatia (own elaboration).

	1 (Less Suitable)	2	3	4	5 (More Suitable)
Touristic potential (Other activities and attractions)					×
Human Capital for the development of cultural tourism					×
Stakeholders' engagement					×
Uniqueness of the site					×

3.1.4. MONTENEGRO

According to the legislative framework of Montenegro [31], there are four AUCHS in the country, as seen in Table 14.

Table 14. List of the AUCHS in Montenegro selected for evaluation (own elaboration).

No	Name	Location	Dating	Artifact
1	Oreste	Budva, Montenegro	WWII	Cargo ship
2	Patrol ship PBR 512	Zanjice, Montenegro	20th cent.	Yugoslavian navy boat
3	Amphorae site located in Old Town area	Budva, Montenegro	Amphorae from 4th cent. B.C.–1st cent. A.D.	Amphorae site
4	Spitfire MK9 Supermarine	Kabala point near Rose in Boka Kotorska	WWII	Airplane

The case of Montenegro was particular, as none of the sites had a 3D reconstruction of the site already available. Therefore, MeDryDive supported the development of a 3D model of the selected site.

Based on the critical criteria and the results of the first level of assessment of candidate sites in Montenegro as shown on Table 15, the pilot site selected is the modern shipwreck “Oreste”, which, according to the Lloyd’s register [32], was built in 1886. The ship sank in the area of Budva, Montenegro in 1942 [33], lying at a depth of 32m. The site is of great potential for diving tourism development in Budva, given the interest of the diving and non-diving community for iron shipwrecks.

Table 15. The assessment board for the candidate sites in Montenegro as defined based on the critical (on/off) criteria (own elaboration).

	Wreck Oreste	Patrol Ship PBR 512	Amphorae Site Located in Old Town Area	Spitfire MK9 Superm Arine
Accessibility	✓	✓	✓	✓
3D model	×	×	×	×
Infrastructure to host the apps	✓	×	✓	×
Tourism infrastructure	✓	✓	✓	✓
Access to the area	✓	×	✓	×
Other attractions	✓	✓	×	✓
Diving centers	✓	×	✓	×

4. Conclusions

The MeDryDive project aims at integrating innovative technologies and CCI applications for the sustainable tourism development in the Mediterranean and introducing them as an asset for the responsible promotion and valorization of AUCHS through the development of a thematic tourism product.

This paper presented the methodology developed in the context of the project for the selection of the sites to be included in the tourism product and to be the content of the integrated digital applications. The methodology was based on an elimination process that depended on critical and non-critical/complementary criteria and developed on a two-level evaluation assessment.

This methodology can be applied to different cases, not only in the Mediterranean but also worldwide, at coastal or island areas where one or more AUCHS are located. Both ancient or modern wrecks or other submerged cultural sites can be considered eligible, as long as they meet the assessment criteria. These include the physical and legislative accessibility of the site, a 3D model for the integration of CCI applications, and the availability of facilities to host the apps, tourism infrastructure, and diving services. Additional attractive features of the area can advance the popularity of the tourism destination and help select the site to be included in the tourism product as a key tourism attraction.

The assessment criteria analyzed in the present paper aims to help competent authorities and management bodies select an AUCH site so that it can be promoted broadly via a transnational tourism product and be highlighted as a point of attraction for divers and cultural lovers. A tourism destination can benefit in terms of promotion, either if the AUCHS is included in the already available “Dive in the Past” tourism product developed by MeDryDive or by having the support of MeDryDive to implement the proposed methodology and develop a new tourism product, adjusted to the specific characteristics and needs of the selected site and the around area. It should be considered that an underdeveloped touristic area with a small economy, without distinctive tourism features and therefore minor potentials for sustainable tourism development can benefit significantly by adopting this model and applying the proposed methodology.

AUCHS retain unique cultural heritage that are often hosted in a marine environment at risk. On these grounds, their responsible promotion is a crucial factor for their protection. The methodology developed by MeDryDive has considered the promotion of the selected sites not only in terms of sustainable blue growth but also to raise public awareness on the value of UCH aiming overall at their protection.

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