ANNEX II: TERMS OF REFERENCE

1. BACKGROUND INFORMATION 2

1.1. Partner country 2

1.2. Contracting authority 2

1.3. Country background 2

1.4. Current situation in the sector 2

1.5. Related programmes and other donor activities 3

2. OBJECTIVES & EXPECTED OUTPUTS 3

2.1. Overall objective 3

2.2. Specific Objective(s) 3

2.3. Expected outputs to be achieved by the contractor 3

3. ASSUMPTIONS & RISKS 3

3.1. Assumptions underlying the project 3

3.2. Risks 3

4. SCOPE OF THE WORK 4

4.1. General 4

4.2. Specific work 6

4.3. Project management 7

5. LOGISTICS AND TIMING 7

5.1. Location 7

5.2. Start date & period of implementation of tasks 7

6. REQUIREMENTS 8

6.1. Staff 8

6.2. Office accommodation 8

6.3. Facilities to be provided by the contractor 8

6.4. Equipment 8

7. REPORTS 8

7.1. Reporting requirements 8

7.2. Submission and approval of reports 8

8. MONITORING AND EVALUATION 8

8.1. Definition of indicators 8

8.2. Special requirements 8

# BACKGROUND INFORMATION

## Partner country

Republic of Bulgaria

## Contracting authority

The contracting authority is the Municipality of Belogradchik

## Country background

Interreg-IPA CBC Bulgaria-Serbia Programme is financing projects related to development of sustainable tourism, youth and environment.

The eligible area of the Programme covers NUTS III regions or equivalents, situated on the border between both partnering countries, including: Bulgarian districts of Vidin, Montana, Vratsa, Sofiyska oblast, Pernik and Kyustendil, and Serbian districts of Bor, Zajecar, Nisava, Toplica, Pirot, Jablanica and Pcinja.

The Ministry of Regional Development and Public Works of the Republic of Bulgaria is designated to perform the functions of Managing Authority, and the Ministry of European Integration of the Republic of Serbia is designated to perform the functions of National Authority under the Programme.

The main office of the Joint Secretariat is situated in Sofia, Republic of Bulgaria, and the branch office – in Nis, Republic of Serbia.

The overall objective of the Programme is to create a positive socio-economic environment, necessary for the development of the border area, two main challenges are faced:

(1) to invest in the effective valorisation and the efficient management of the territory; and

(2) to increase cross-border networks, interactions and connections both at the social, economic and environmental spheres.

These are to be considered as pillars of the new Programme, reflected in its overall objective: to stimulate the balanced and sustainable development of the Bulgaria-Serbia border region integrated in the European space – achieved through smart economic growth, environmental change adaptation and learning culture enhancement.

The tender is part of project No CB007.2.11.064 “Preservation and Attractive Exhibition of the Natural and Cultural Heritage of Belogradchik and Boljevac Municipalities”, financed by the Interreg – IPA CBC Bulgaria-Serbia Programme 2014-2020, Priority Axis „Tourism, Specific Objective 1.1 Tourist Attractiveness.

The overall goal of the project is enhancing the tourist attractiveness of Belogradchik – Boljevac region by improving the condition of Magurata Cave in Belogradchik, establishment of Nature and Tourist Center in Boljevac and joint tourism popularization activities.

The purpose of the public procurement is to create multimedia and software products for the operation of 3 interactive displays, 3 holographic installations, 1 LED display and cards for perceived reality, functioning by means of QR codes, as well as the augmented reality maps themselves.

The creation of multimedia and software products will contribute to the development of tourism in the two municipalities, attractive presentation and promotion of the tourist sites in them.

## Current situation in the sector

The two partners in the project - the Municipality of Belogradchik and the Tourist Organization of Bolevac are located in territories with a weak trend of economic development. Among the economic branches, light industry, tailoring, food industry, plant breeding and animal breeding prevail, which are developing at a slow pace. There is a lack of large production enterprises, due to amortized material base, deteriorated technical infrastructure, remoteness from main areas with resource security in economic sectors. Another main problem of the target area is related to the depopulation of the areas in general, related to the negative natural increase and the migration of the working population to the big cities and EU member states, an aging population and a high death rate and a low birth rate.

The tourism sector has the greatest potential and opportunities for development, as the territories of the partners are rich in biodiversity, natural resources and tourist sites.

The problems related to the tourism sector are: the two partners are located in economically undeveloped territories; presence of natural attractions in poor condition, insufficiently safe for visits and not meeting the current needs of tourists; poor promotion of tourist attractions; insufficient infrastructure to promote tourism, promote natural sites and accommodate visitors.

Opportunities for the development of the tourism sector: favorable location of the municipalities, close to both sides of the border; owning territories with extremely rich natural resources; having facilities that can be developed and attract visitors; experience in the organization of activities for the development of tourism.

## Related programmes and other donor activities

n/a

# OBJECTIVES & EXPECTED OUTPUTS

## Overall objective

To improve the tourist attractiveness and diversify the tourist products in the region of Belogradik - Bolevats (B-B)

## Specific objective(s)

Developed multimedia and software products.

## Expected outputs to be achieved by the contractor

The expected outputs of this contract are as follows:

* Created maps for augmented reality – 3000 pieces;
* Created multimedia for interactive displays - 3 pieces;
* Created multimedia for hologram installations - 3 pieces;
* Created multimedia for 65" LED display - 1 pieces;
* Created web-based map operation system for augmented reality /Mobile application/

for the functioning of maps for augmented reality - 1 pieces.

# ASSUMPTIONS & RISKS

## Assumptions underlying the project

The implementation of the current contract will support the Contracting Authority in the process of implementation of the project “Preservation and Attractive Exhibition of the Natural and Cultural Heritage of Belogradchik and Boljevac Municipalities”, financed under INTERREG-IPA CBC Bulgaria-Serbia Programme, and will assure compliance with the EU regulations. The following assumptions can be made in order to reduce the risks related to delay or non-realization of the activities, subject to this Terms of Reference:

* Clear understanding of the contract purpose and tasks on behalf of the Contractor;
* Full cooperation between the Contracting Authority and the Contractor with a view to fulfil the tasks on time, with high quality and within the budget limitation;
* The contractor has the required expertise in the activities of planning, organization and implementation of the required activities;

## Risks

Potential risks to the successful implementation of the contract include:

* Lack of communication and logistical coordination between the Contractor and the Contracting Authority. In order to avoid this risk, the Contractor should show initiative and maintain continuous contact with the relevant representatives of the Contracting Authority so as to ensure delivery of services in a timely and quality manner;

# SCOPE OF THE WORK

## General

### Description of the assignment

The main goal of the project is the promotion and attractive presentation of the municipalities of Belogradchik and Boljevac. The creation of multimedia and software products fully corresponds to the achievement of the common goal, by presenting the natural wealth and highlights and opportunities in both regions.

It is planned to make augmented reality cards with QR codes, 3 pcs. multimedia for interactive displays; 3 pcs. multimedia for holographic installations; 1 piece. multimedia for 65" LED display and 1 pc. a web-based system for the functioning of augmented reality maps.

**Augmented Reality Maps:**

Augmented reality maps visualize 3D objects of Magura cave, which are visualized by QR codes, via the camera or a QR code scanning application via mobile devices. In the present concept, we consider a visualization of 6 pcs. 3D objects from the cave . The design of the map must contain visualizations from the cave, the name of the object, as well as the mandatory requisites for information and publicity of the program. The design of the card is double-sided, with a visualization of the cave and the name of the site on the face, and the details, a QR code, and a brief explanation of how the Augmented Reality (AR) map works on the back. The cards will function through a web-based system /mobile application/, which will be integrated into the QR code, which will be the same for all cards produced.. The initial planned production quantity is 3000 pcs. maps, which will be provided freely /free of charge/ to the visitors of "Magura" cave. When the quantity of 3,000 pieces is exhausted, the Municipality of Belogradchik will periodically provide a quantity of cards, in terms of the card carrier and, accordingly, the printing of their images and the already created code for the project. Regarding a web-based system, it will be created according to the project and will be freely used in the future by the municipality for the functioning of the maps.

The purpose of the subsequent issuance of the maps is to achieve sustainability of the project results, popularization and attractive presentation of the site, as well as attracting more potential visitors to the "Magura" cave and the town of Belogradchik. Re-creating the 6 site of the cave, through the maps, will increase the interest of those who are not informed about it and the potential users who do not know the beauties of the cave, thus provoking the desire to visit not only the cave , but also in the area.

The so-called objects that will be visualized on the maps are a prehistoric bear, a visualization of a primitive man lighting a fire and working with a primitive weapon, a visualization of a primitive man painting the drawings in the cave and a video presentation of the flora, fauna and individual formations of it .

**Multimedia for interactive displays:**

It is planned to make 3 pcs. multimedia, for the purpose of the functioning of 3 pcs. interactive displays positioned inside the "Magura" cave. The information on each of the multimedia will be tailored to the predetermined location of the displays and the corresponding objects that are located in their surroundings and the recreation of the prehistoric life of the corresponding location. We plan to make 1 pc. multimedia to present the prehistoric drawings, on display in the hall with the drawings, 1 pc. multimedia for recreating prehistoric life in the cave on a display positioned near the "Fireplace" and 1 pc. multimedia that will present the flora, fauna and individual formations

Each one of the multimedia will last at least 7 minutes in order to show, introduce our generations to the unknown and mystical that existed during the primitive life in the cave.

Additional parameters: 4K resolution, with voiceover recording in 3 languages – Bulgarian, English and Serbian, with background music describing the corresponding image and repeatability option (LOOP).

**Multimedia for holographic installations:**

We plan to make 3 pcs. video films for projection with a holographic effect, and the images will be recreated by means of holographic installations positioned in three specific places in the "Magura" cave. The holographic images are of a prehistoric bear, the mushroom, and a prehistoric man lighting a fire and working with a primitive weapon.

Hologram projections effect are 3D for recreation maximum realistically on the objects , with duration minimum 2 minutes everyone one , in 4K resolution , with record on announcer voice in 3 languages - Bulgarian , English and Serbian , with music pad descriptive the corresponding the image , sound recording and option for repeatability (LOOP).

**Multimedia for 65” LED display:**

The multimedia for the 65" LED display will include the creation of a 3D interactive map of landmarks in the region of Belogradchik Municipality and its surroundings, relief, topographic data, information on routes, duration, difficulty, weather conditions. Weather conditions will be visualized via an API connection to global databases such as accuweather . Multimedia parameters for each object included in it are the following: 3D image with a minimum of 100,000 polygons, a minimum of 20 pcs. video films, as each video film includes one subject from the pre-set minimum of 20 subjects, with a duration of at least 3 minutes, voiced by a voice-over in 3 languages - Bulgarian, Serbian and English with a musical background.

VR 360 degree walk with a minimum of 15 interactive points in Magura Cave will also be developed .

Аnticipate that the multimedia product will also be broadcast on a display located in the Municipal Administration - Belogradchik, ground floor.

**Web-based system /Mobile application/:**

It is planned to provide a web-based system /mobile application/ through which the maps for augmented reality will function and by means of which 3D images and video presentations /video films/ will be visualized. Through the system, the user can view 6 objects, in augmented reality from the "Magura" cave - 3 objects. 3D images /prehistoric bear, primitive man who lights fire and works with primitive weapons and the mushroom/, 3 pcs. video films /1 pc. multimedia for the presentation of the prehistoric drawings, 1 pc. multimedia for recreating prehistoric life in the cave and 1 pc. multimedia, which will present the flora, fauna and individual formations from the "Magura" cave.

The 3 holographic images and the 3 video presentations /video films/ are the intended multimedia for the holographic installations and interactive displays.

For the web-based augmented reality system /mobile application/, it is necessary to use an existing web platform in which to make the appropriate settings for the functioning of the augmented reality maps. The functional settings of the platform must be in accordance with the parameters laid down in the multimedia production requirements for the hologram installations and interactive displays.

The multimedia for the holographic installations and displays are integrated into the web system /mobile application/ and by means of the QR code created in it, are visualized as 3D images and video presentations /video movies/, through the maps for augmented reality.

### Geographical area to be covered

Cross border region of Bulgaria and Serbia.

### Target groups

* Visitors of Magurta Cave;
* Visitors of the NTC on Rtani Mnt;
* Population of Belogradchik Municipality;
* Population of Vidin District;
* Population of Boljevac Municipality;
* Population of Zaejar District;
* Representatives from the tourist sector in Zaejar District;
* Representatives from the tourist sector in Vidin District

## Specific work

The Contractor is expected to perform the following tasks:

***Task 1: Augmented reality map making 3000 pieces, including:***

* Augmented reality map design of Magura Cave sites. The design of the map must contain visualizations from the cave, the name of the object, as well as the mandatory requisites for information and publicity of the program. The design of the card will be double-sided, with a visualization of the cave and the name of the object on the face, and on the back there will be requisites, a QR code, as well as a brief explanation of how the augmented reality (AR) card works;
* Making/printing/ cards for creating augmented reality. Double-sided color printing of 3000 pieces of cards for augmented reality with dimensions of 9x9 cm from cardboard material with a minimum weight of 240 g/m2

***Task 2: Creating*** ***multimedia for interactive displays:*** 3 pcs. multimedia, including a minimum of 3 video films of a minimum duration of 7 minutes each, in 4K resolution, with voiceover recording in 3 languages ​​– Bulgarian, English and Serbian, with a musical background describing the corresponding image and a loop option (LOOP). Multimedia presentation of the prehistoric drawings, the prehistoric life in the cave and about individual formations in it / production of 1 pc. multimedia to present the prehistoric drawings, on display in the hall with the drawings, 1 pc. multimedia for recreating prehistoric life in the cave on a display positioned near the "Fireplace" and 1 pc. multimedia that will present the flora, fauna and individual formations/

***Task 3: Creating*** ***multimedia for*** ***holographic installations:*** 3 pcs. video films for projection with hologram effect /prehistoric bear, primitive man who makes fire and works with primitive weapon and the sponge/, in 3D to recreate the objects as realistically as possible, lasting at least 2 minutes each, in 4K resolution, with recording of voiceover in 3 languages ​​– Bulgarian, English and Serbian, with a musical background describing the corresponding image and voice over and repeatability option (LOOP).

***Task 4: Creating*** ***multimedia for 65” LED display 1 piece:*** Creation of a 3D interactive map of landmarks in the region of Belogradchik Municipality and its surroundings, relief, topographic data, information on routes, duration, difficulty, weather conditions. Weather conditions will be visualized via an API connection to global databases. Multimedia parameters for each object included in it are the following: 3D image with a minimum of 100,000 polygons, a minimum of 20 pcs. video films, as each video film includes one subject from the pre-set minimum of 20 subjects, with a duration of at least 3 minutes, voiced by a voice-over in 3 languages ​​- Bulgarian, Serbian and English with a musical background. VR 360 degree walk with a minimum of 15 interactive points in Magura Cave. The multimedia product will also be broadcast on a display located in the Municipal Administration - Belogradchik, ground floor.

***Task 5: Creating web-based map operation system for augmented reality /Mobile application/ 1 piece:*** Provision of a web-based system /Mobile application/ through which the maps for augmented reality will function and through which 3D images and video presentations /video films/ will be visualized. Through the system, the user can view 6 objects, in augmented reality from the "Magura" cave - 3 objects. 3D images /prehistoric bear, primitive man who lights fire and works with primitive weapon and the sponge/, 3 pcs. video films /1 pc. multimedia for the presentation of the prehistoric drawings, 1 pc. multimedia for recreating prehistoric life in the cave and 1 pc. multimedia, which will present the flora, fauna and individual formations from the "Magura" cave.The 3 holographic images and the 3 video presentations /video films/ are the intended multimedia for the holographic installations and interactive displays, according to Task 2 and Task 3. For the web-based augmented reality system /Mobile application/, it is necessary to use an existing web platform in which to make the appropriate settings for the functioning of the augmented reality maps. The functional settings of the platform /мobile application/ must be in accordance with the parameters laid down in the multimedia required for production in Task 2 and Task 3.The multimedia for the holographic installations and displays are integrated into the web system and, by means of the QR code created in it, are visualized as 3D images and video presentations /video films/, through the maps for augmented reality.

## Project management

### Responsible body

### A member of the Contracting Authority's team responsible for the overall management and coordination of the project is the Project Manager - Milena Ivanova or her authorized representative.

### Management structure

The Contracting Authority is responsible to launch the service tender procedure, sign the service contract, accept the work of the Contractor, authorize payments to the Contractor and handle the financial management and control during project implementation.

The day-to-day operational work on implementation of the contract will be also performed by the team members of the Contracting Authority.

### Facilities to be provided by the contracting authority and/or other parties

The Contracting authority shall provide the Contractor with all additional information, if necessary, for the contract implementation and shall ensure the necessary coordination with the relevant project stakeholders, where applicable.

# LOGISTICS AND TIMING

## Location

The project activities will be carried in the crossborder area of Bulgaria and Serbia.

## Start date & period of implementation of tasks

The intended start date is **16.02.2023** and the period of implementation of the contract will be **45 (forty-five) calendar days from this date**. Please see Articles 19.1 and 19.2 of the special conditions for the actual start date and period of implementation.

# REQUIREMENTS

## Staff

Note that civil servants and other staff of the public administration of the partner country, or of international/regional organisations based in the country, shall only be approved to work as experts if well justified. The justification should be submitted with the tender and shall include information on the added value the expert will bring as well as proof that the expert is seconded or on personal leave.

### Key experts

N/A

### Other experts, support staff & backstopping

N/A

## Office accommodation

N/A

## Facilities to be provided by the contractor

The contractor shall ensure that experts are adequately supported and equipped. In particular it must ensure that there is sufficient administrative, secretarial and interpreting provision to enable experts to concentrate on their primary responsibilities. It must also transfer funds as necessary to support their work under the contract and to ensure that its employees are paid regularly and in a timely fashion.

## Equipment

**No** equipment is to be purchased on behalf of the contracting authority / partner country as part of this service contract or transferred to the contracting authority / partner country at the end of this contract. Any equipment related to this contract which is to be acquired by the partner country must be purchased by means of a separate supply tender procedure.

# REPORTS

## Reporting requirements

No reporting requirement is predicted under this tender.

## Submission and approval of reports

N/A

# MONITORING AND EVALUATION

## Definition of indica tors

N/a

## Special requirements

N/a