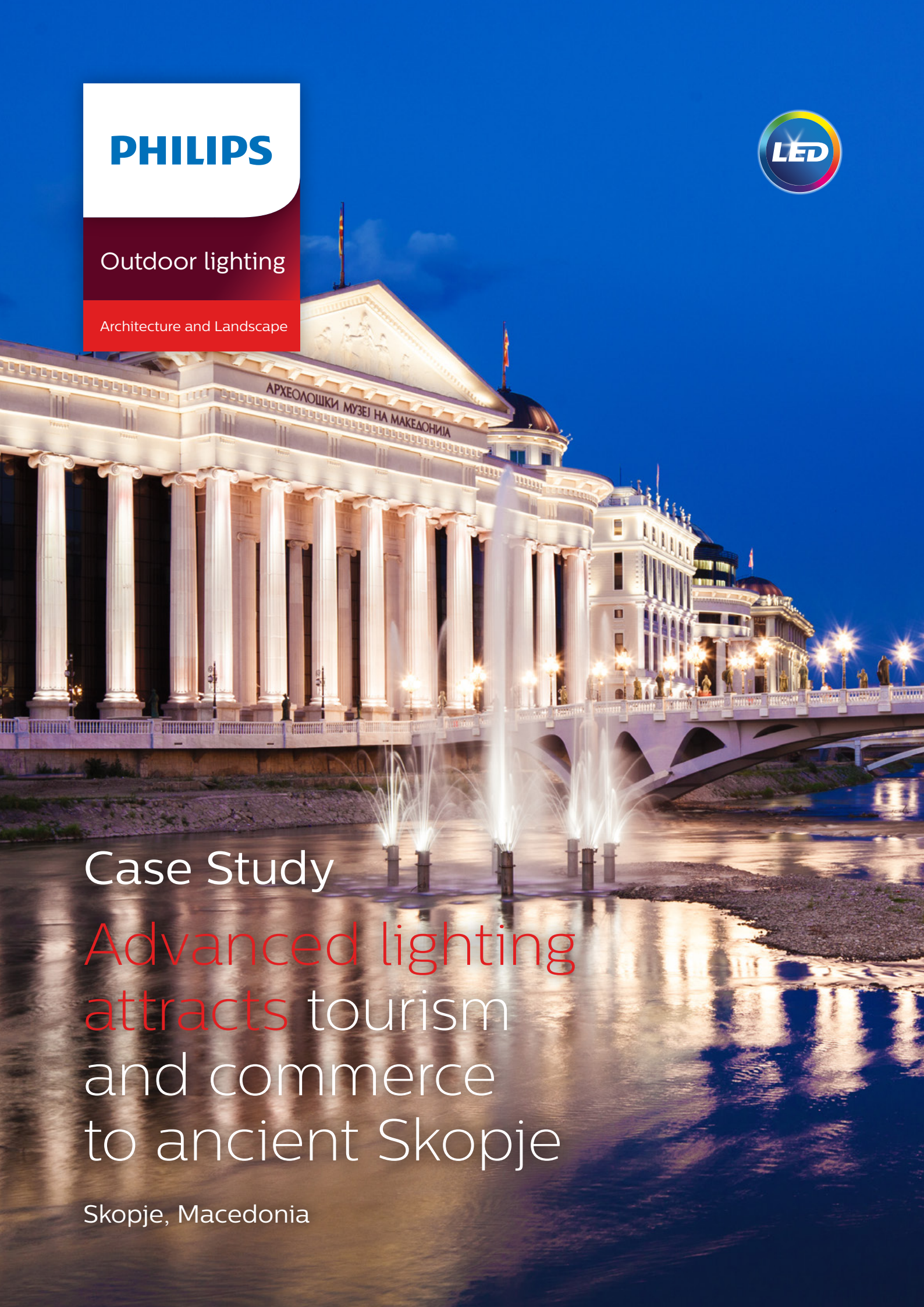
PHILIPS

Outdoor lighting

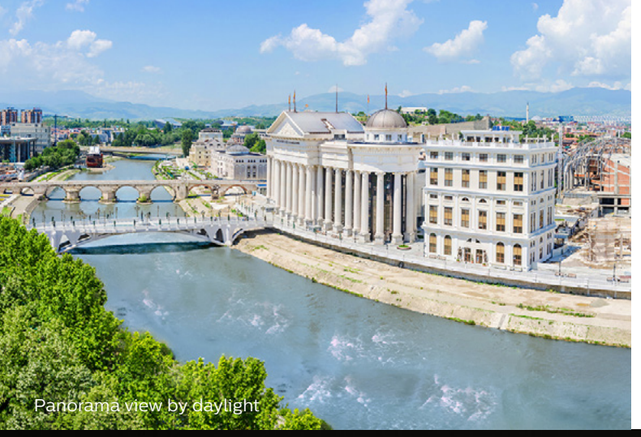
Architecture and Landscape




# Case Study

# Advanced lighting attracts tourism and commerce to ancient Skopje

Skopje, Macedonia



Panorama view by daylight

**Client**
Skopje Municipality

**Investors**
Government of Republic of Macedonia
City of Skopje, Ministry of Culture and
Centar Municipality

**Contractor**
Several local civil engineering companies

**Lighting design**
Local architectural and designer offices

**Installation date**
2012-2014

> “The creative and unique lighting of the new buildings, the city square, Kale fortress, **the monuments and bridges have created true magic in the evenings and have made the picture of Skopje complete**. The illumination accentuates the aesthetics and changes the way we view things for the better. I believe that this is exactly what we accomplished in Skopje.”
>
> Mr. Trajanovski, the Mayor of the City of Skopje.

Architecture & Landscape

Panorama view of Skopje city center

## Background

Skopje is the capital and largest city of the Republic of Macedonia. It is the country’s political, cultural, economic, and academic center and, since it lies on the major north-south trade route between Belgrade and Athens, has a history spanning of thousands of years and contains many antiquities for tourists to enjoy. At one time part of the Ottoman Empire, Skopje has a mixed Muslim and Christian population.

In 1963, Skopje was struck by an earthquake that destroyed three quarters of the city, including most of the public buildings in the central city area. Renovation was slow, especially in the city center. The earthquake destroyed antiquities in the historic center of Skopje, the restoration of which continues today. Now, Skopje is been renovated by means of a large-scale project aimed at transforming the city’s economic life and making it even more attractive to tourists.

## The Project

The regeneration of Skopje’s city center is focused on its Macedonian identity. Drawing inspiration from the architectural styles of classical antiquity, the project envisages the construction of around 40 epic monuments and 20 buildings, including museums, theatres, concert halls, hotels and administrative offices. New fountains, springs and benches will also be provided.

The project with its new lighting is expected to attract both tourists and residents into the city center, as well as encouraging them to revisit the city more frequently, by attracting the attention of lovers of evening walks and tempting them to visit the facilities during the day. The new lighting includes the availability of special lighting scenarios during national holidays and other significant events, using the Macedonian state colors.

The project has attracted controversy. Supporters say it will transform the image of a city dominated by decades of so-called ‘pessimistic’ Socialist architecture and neglect. They believe it has the potential to restore a missing sense of national pride and create a more metropolitan atmosphere. On the other hand, some architects are unhappy with the aesthetics of the project and would have preferred a more contemporary approach.

The project’s prime benefit, though, is that it will increase tourism and related economic development in the city. The jury of the city.people.light award team praised Skopje for their clear and nationalistic approach to celebrate their culture through a carefully chosen color palette by means of a high-quality, well executed lighting design.

## Lighting scheme

The scheme integrates lighting into the architecture of façades. It now highlights the beauty of buildings and structures with light and shadow, attracting attention and enhancing the structures.

The lighting has three operating modes:

1. Standard mode with natural white color of the light of 4000K color temperature.
2. Operation mode after midnight, when the lighting is dimmed to 50% to save energy.
3. Formal mode of operation, using state colors during public holidays.

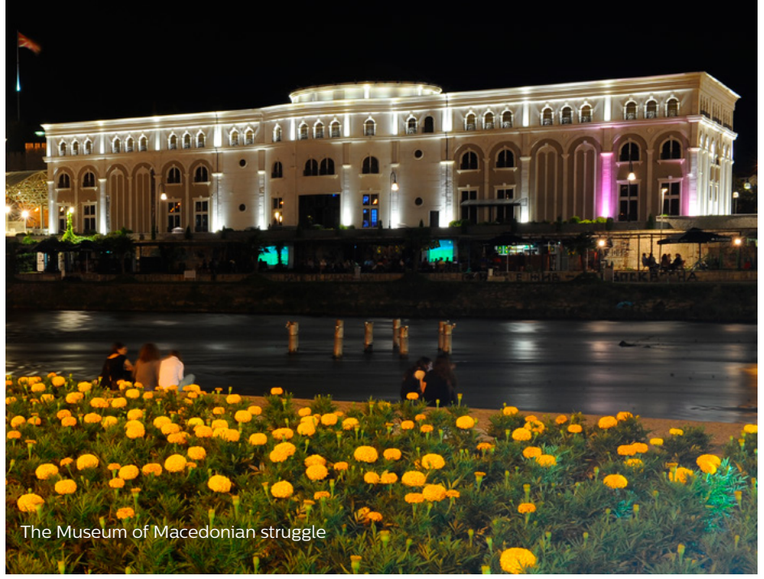
This advanced scheme could only have been implemented using technologically advanced LED lights and controls available in a wide range of optical systems and various beam angles: 6; 15; 30; 60 and

90 degrees, etc. The relevant intensity and angle of light distribution is selected to suit the form and structure of the element that is being illuminated.
For example, narrow-angle, high power lighting is used on architectural columns to avoid spill light on the adjacent façade.

In the formal operation mode, the scene simulates the Macedonian flag, with red and yellow colors that seem to wave in the wind. These dynamic effects are driven by astronomic relays and dynamic control systems. The automation of the processes provides unlimited possibilities for creating light effects and atmospheres to enrich various festivities.

## The monuments

**Gate Macedonia**, by the city square, is a triumphal gate. The outer surface has a relief covering 193 m², depicting various events from and characteristics of the history of Macedonia and its culture.

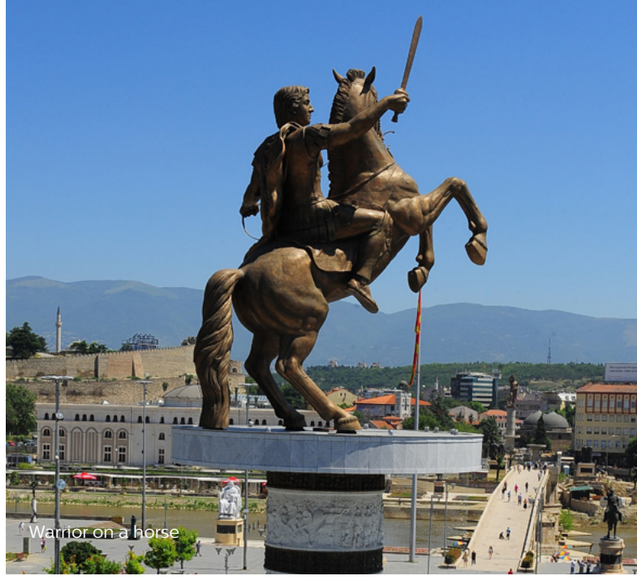

The Museum of Macedonian struggle

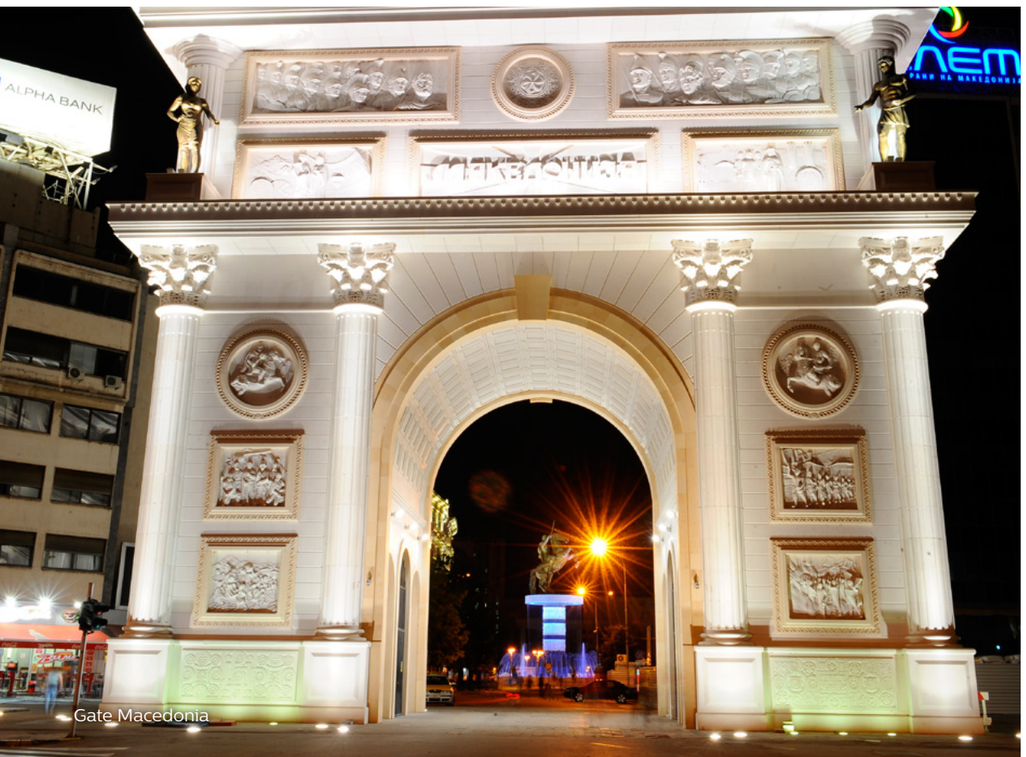
The illumination emphasizes the pillars and relief artwork, as well as the bronze statue.

**The Stone Bridge**, on the Vardar River was rebuilt in the XV century and, since it is located in the central area of the city, provides a link between the new and the old part of the city. The bridge has been illuminated along its entire length with low-energy waterproof lights.

**“Warrior on a horse”** is a monument with a fountain in Macedonia square. The bronze sculpture is 14.5 meters high, standing on a 10m tall concrete foundation. The fountain now plays music and colored RGB LED lights follow the music’s rhythm.


The Stone bridge


Warrior on a horse

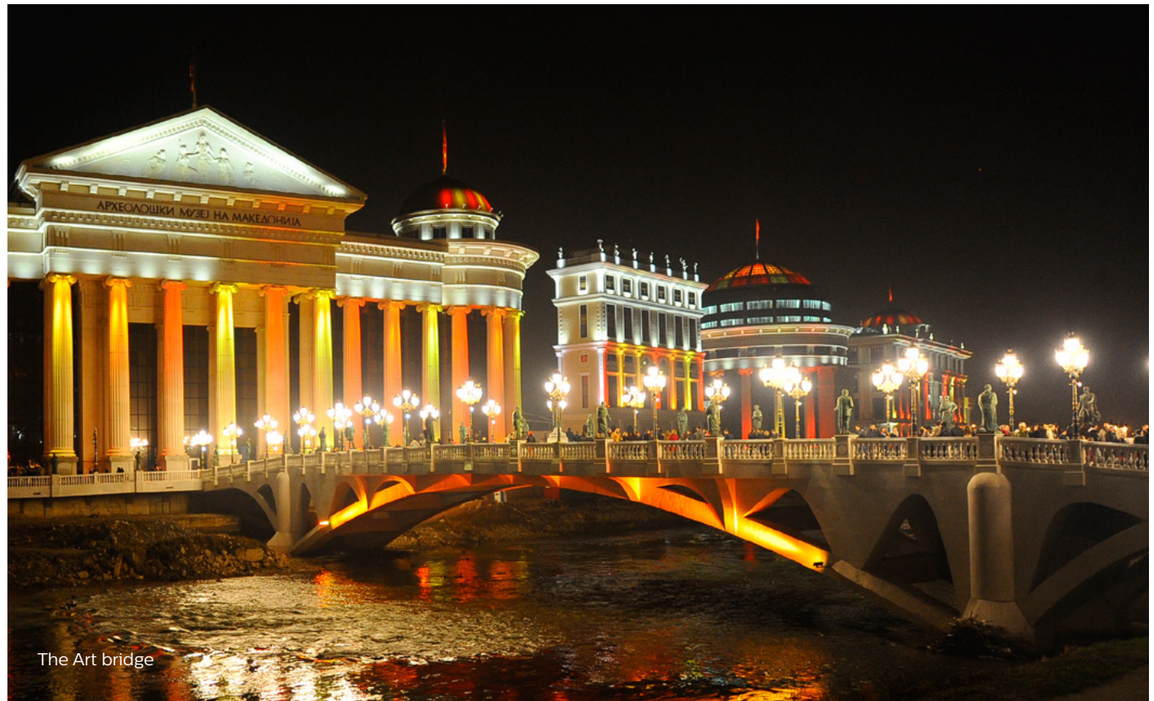


Gate Macedonia

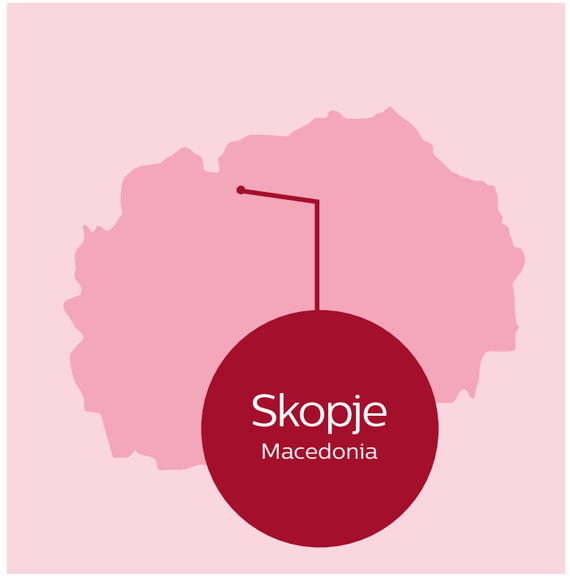
**The Art Bridge and the Eye Bridge** are pedestrian bridges over the Vardar River. 29 sculptures of famous artists and musicians have been placed on the Art Bridge; the Eye Bridge contains 33 sculptures of historical figures. Powerful narrow-beam LED flood lights w illuminate the arches. Functional illumination is provided by decorative luminaires with metal-halogen light sources, with DALI protocol for regulating the intensity.

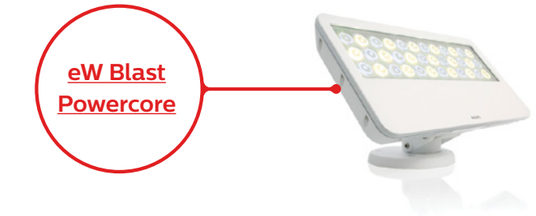
The Eye Bridge in its central section contains a glass surface in the form of an iris of the eye, illuminated from beneath with LED line lights running at a safe 24 V.

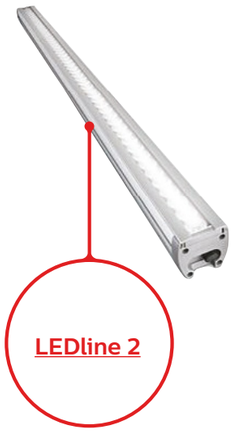
Generally, lights have integrated power supplies to simplify installation and reduce costs. Dynamic lighting has integrated supplies with Philips Powercore control technology. Since some façades are hard to reach, the project concept includes power circuits that are small, so that faults will be less noticeable.

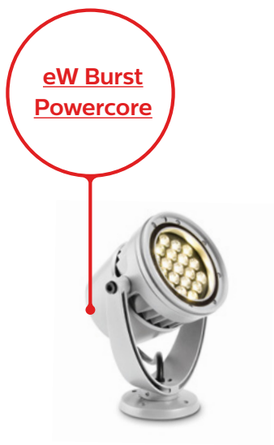


The Art bridge





## Benefits

This project has provided a significant increase in the turnover and economic benefits for a high number of retail shops located in the central city area. In the facilities where the institutions are to operate, jobs will be created for a large number of people in a wide range of catering and commercial businesses that will enjoy new prosperity from a greater number of tourist customers. The majority of foreign tourists visit the central city area to record their visits to Skopje with night-time pictures.

According to the latest data from the State Statistical Office, 22,153 foreign tourists entered Macedonia up to May 2014, and 9,000 of them visited Skopje.
The number of tourists increases every year. In 2013, Skopje was visited by 168,786 tourists; 149,201 were foreign and 19,596 domestic. There were a total of 286,682 overnight stays in Skopje in 2013 (259,608 for foreign and 29,074 domestic).

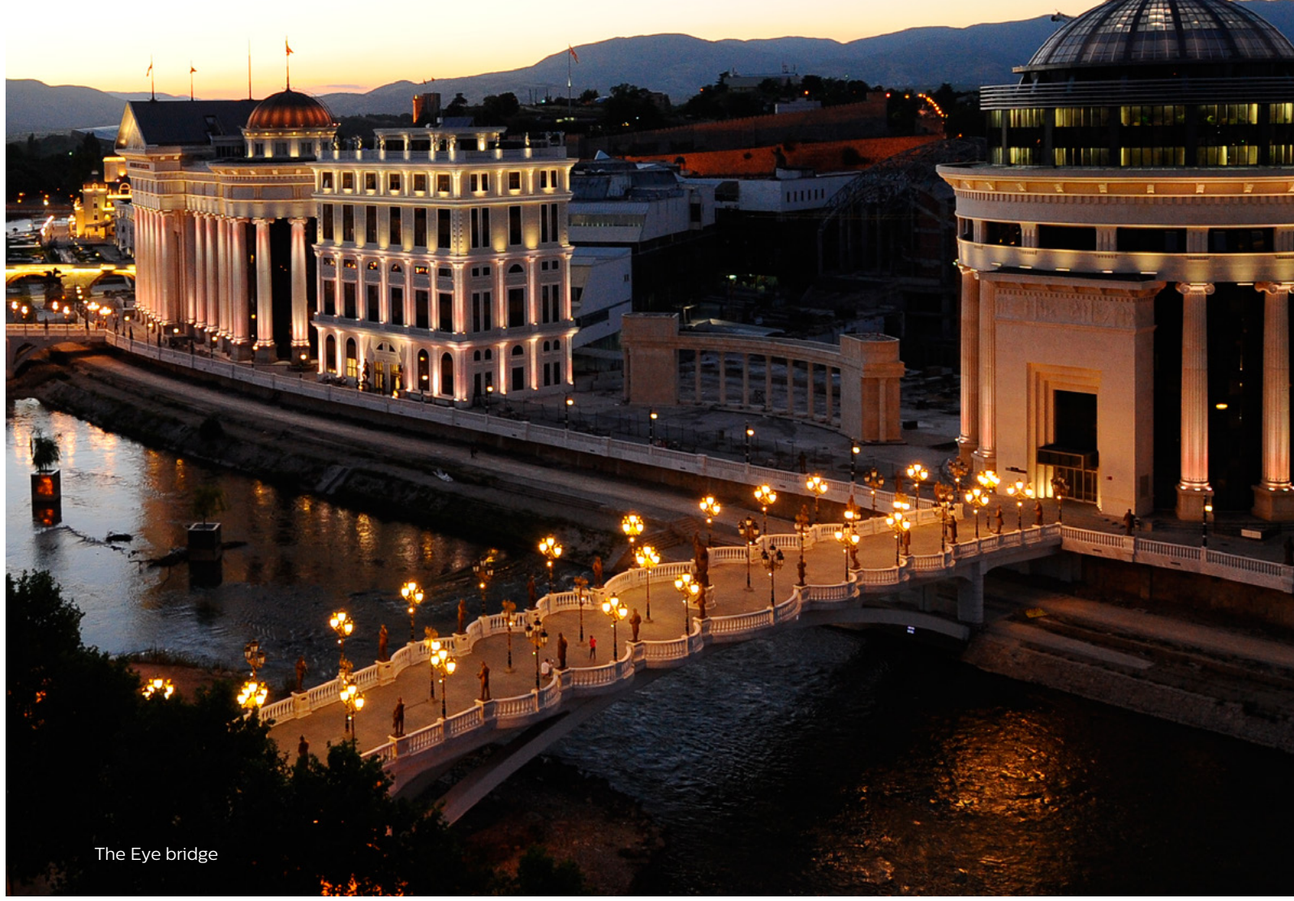
Low-energy LED lighting reduced Skopje's energy bill by more than 40%, and maintenance savings of over 20% are expected compared with conventional fluorescent light sources. When Skopje achieves 100% LED lighting, energy efficiency with savings exceeding 65% could be achieved to underline the "Green image" of the entire project.

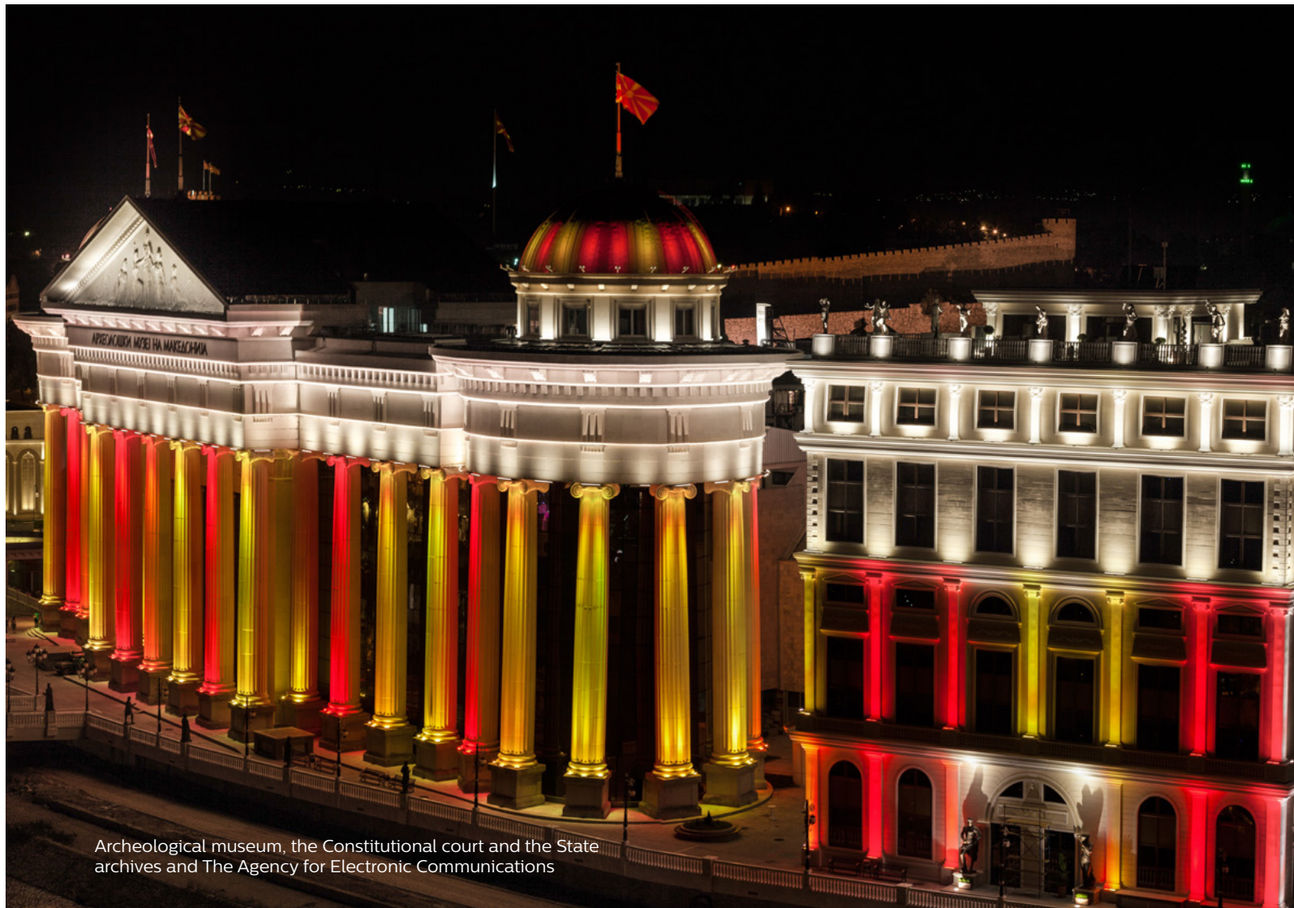
**Additional income** from tourism

True magic in the evening

New jobs **in retail and hospitality**

More **visits to Skopje**


The Eye bridge


Archeological museum, the Constitutional court and the State archives and The Agency for Electronic Communications

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