

# Deliverable D6.6

## Evaluation of Performance in Demonstration Site of Technical Museum Nikola Tesla, Zagreb (Croatia)

### WP6

**Grant Agreement number** 657982

**Project acronym** Cheap-GSHPs

**Project full title** **C**heap and **E**fficient **A**pplication of reliable **G**round **S**ource **H**eat Exchangers and **P**umps

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***Dissemination Level***

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| <b>PU</b> | Public   |          |
| <b>CO</b> | Confidential, only for members of the consortium (including the Commission Services) | <b>X</b> |
| <b>CI</b> | Classified, as referred to in Commission Decision 2001/844/EC                        |          |

## Publishable summary

The Evaluation of performance in demonstration site No 6: UNESCO Historical building” is a confidential document delivered in the context of WP6, Task 6.6 “Demonstration site No 6: a public cultural building (museums) in Western Balkans” with regard to the Cheap-GSHPs solution as implemented at the premises of the Technical Museum Nikola Tesla of Zagreb (Croatia).

The following document provides an overall and detailed narrative of the full implementation and the assessment of the performance of Cheap-GSHPs power system built at the premises of the Technical Museum Nikola Tesla, a historical-monumental building located at the capital city of Croatia, under the coordination of the UNESCO Regional Bureau for Science and Culture in Europe. The assessment refers to the functioning of the system, according to different seasonal parameters, which runs by the combination of two main innovative technological provisions put at test. Namely, a highly performing two stages heat pump prototype (supplying high temperatures (65/70°C), devised and telemonitored by GALLETTI, also responsible for the instrumentation and the data acquisition and logging system along with with RED and UNIPD-IE, and the innovative pipes produced by REHAU and installed by HYDRA. This case also highlights how Cheap-GSHPs project was able to successfully overcome conservational constraints and barriers to geothermal power application in cultural sites through an inclusive working scheme involving conservational and management authorities of the site along with local and international technical experts. Finally, the project task not only completed its purpose by cooling/warming the museum in an environmentally-friendly and sustainable method, but it surpassed its original purpose: the climatic condition of the museum improved along with the quality of life for workers and visitors alike, and the Cheap-GSHPs power system installation and its control room allows for extra educational activities for youth. The results achieved may well serve as a powerful showcase to further disseminate the Cheap-GSHPs solution in the context of built heritage and museums in particular at a larger scale.