

October 2012

# SMARTBUILT

## Newsletter#1

Warm welcome  
from Ionian  
University /  
Project aims and  
scope / Project  
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Project partners



## PROJECT S.M.A.R.T. BUIL.T.: A SHORT INTRODUCTION

### Structural Monitoring of ARTistic and historical BUILDing Testimonies

The S.M.A.R.T. BUIL.T. project is co-funded by the European Union and National economic resources within the European Territorial Cooperation Programme Greece – Italy 2007 – 2013. The projects particularly aims at developing building structural monitoring procedures, particularly emphasizing on structures of special architectural character and significant historic importance existing at the cities of Corfu and Trani.

During the last years, the european community has clearly realized the fundamental role that historic buildings have, not only as subjects for preservation, but mostly as national and regional cultural resources. These structures obviously represent a basic component of the history and identity of local communities, affecting in parallel the local economic dimensions.

Under this perspective, the impact of the studies focusing on monitoring and risk prevention (for example due to earthquakes,

environmental pollution, noise and traffic conditions) is not exclusively limited to optimizing these buildings' protection plans, but also aim to further develop the local economic growth.

The dept. of Informatics of Ionian University role within the project is to design and install a wireless network for assessing the environmental parameters related to vibrations applied to historic public structures and buildings. These activities will also consider the definition of general guidelines for designing the above wireless sensor network, with emphasis on communication, clustering and data management issues.

On behalf of Ionian University / Dept. of Informatics, I would like to thank all the project partners for the effective and successful collaboration within the innovative project scope, which represents a significant challenge for Ionian University and particularly for the department of informatics.



European Territorial Cooperation Programme

**Greece - Italy  
2007-2013**

**INVESTING IN OUR FUTURE**

Co-funded by the European Union (ERDF)  
and by National Funds of Greece & Italy



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## Project aims and expectations

Architectural heritage is an important part of the history and identity of Italy and Greece, contributing to their economy and well being. On the other side, ancient buildings suffer a high vulnerability to dynamic loads, which may induce an unpredictable partial or total collapse. Recent past experience after L'Aquila earthquake strongly evidence this problem. The core idea of the project is risks prevention, which concerns not only the prevention of loss of lives and property but also the preservation of artistic and historical buildings from natural hazards

The S.M.ART. BUIL.T. project aims at the implementation of procedures for the structural monitoring, the seismic vulnerability assessment, the development of guidelines for strengthening and repair of the historical buildings (in Trani and Corfu). The two historic centres are made up of many ancient and brittle masonry buildings, mostly built with local stone, representative of a widespread typology in the Mediterranean area.

The project is particularly divided in four parts: a) project management; b) dissemination of knowledge; c) research development and d) technological innovation.

A total of five workpackages (WPs) are currently planned:

WP1 is concerned with the scientific coordination and administrative and financial management.

WP2 is concerned with the information actions and knowledge dissemination activities.

WP3 is concerned with the basic idea of the project. The main goal is to check the preservation status of some selected representative historical buildings throughout the measurement of their dynamic response under ambient and/or artificial loads.

WP4 is concerned with the development of a wireless accelerometers network.

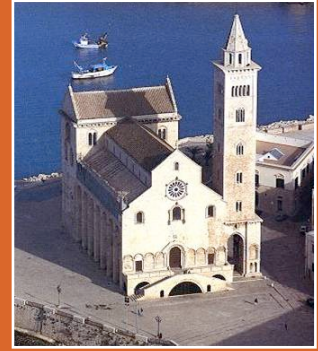
WP5 is devoted to seismic vulnerability assessment via monitoring.

The expected results can be summarized as following: a) Formulate a method of analysis of the most recurrent structural pathologies and the most appropriate rehabilitation techniques for buildings of the historic centers; b) Provide a damage scenario, both direct and indirect, due to the expected earthquakes and codify repair interventions. c) Three guidelines are devoted to the first result, on the following topics: seismic vulnerability reduction; urban rehabilitation plans; wireless sensor networks. One guideline is devoted to the second result, concerning the rules for strengthening and repair of historical buildings.

Web site:

[www.smartbuilt.eu](http://www.smartbuilt.eu)

## THE BUILDINGS



### Trani and Corfu Buildings

**The Bell Tower, Trani:** the Cathedral dedicated to St. Nicholas the Pilgrim  
**The Clock Tower, Trani:** The Swebian Castle  
**San Giacomo, Corfu:** The building that accommodates the Town Hall of Corfu, initially built as a Lodge for the Nobles (Loggia dei Nobili)  
**Annunziata, Corfu:** the Catholic church of Lontsiada, devoted to the Annunciation and to Aghia Loukia.



# S.M.A.R.T. BUILT.



## Structural Monitoring of ARTistic and historical BUILDing Testimonies



POLYTECHNIC OF BARI



UNIVERSITY OF SALENTO



IONIAN UNIVERSITY  
DEPARTMENT OF INFORMATICS

Project Partners



MUNICIPALITY OF TRAWADE



CORFU MUNICIPALITY  
SOLE SHAREHOLDER COMPANY S.p.A.

## Politecnico di Bari - Project Leader

The “Politecnico di Bari” is a technical university funded in 1990 by the confluence of existing departments and institutes of the University of Bari. Nowadays, the “Politecnico di Bari” is organized in 11 departments and a network of 3 Faculties of Engineering and Architecture, with a central administration and management.

The researchers working at the Structural Engineering section of the Department of Civil and Environmental Engineering (D.I.C.A.) develop their research activity in the following fields: computational mechanics; structural monitoring; structural restoration; earthquake hazard; seismic protection systems, and are involved in many national and international projects.

The laboratory “M. Salvati” for materials and structure testing, that is going to be transferred to a new structure thus becoming the greatest laboratory in the South of Italy, can perform dynamic tests on civil structures, as well as tests for improving the earthquake resistance of constructions.

## University of Salento

The University of Salento is a public university which includes 10 Faculties and 17 departments. The researchers working at the Department of Engineering for Innovation have gained a broad experience in the design of dynamic testing procedures and in the use and development of analysis software packages for operational modal analysis.

## Dept. of Informatics, Ionian University

The Department of Informatics of the Ionian University is specialized in the area of Information Systems. According to the modern international needs, the staff is comprised of experienced

scientists with a strong vocation for interdisciplinary. The research areas most related to the project objectives are: signal processing; wireless computer networks; ad hoc networks; computational applications for non-linear dynamic systems.

## Municipality of Trani

Trani is characterized by a strong commitment to preservation of historic centers. It has already prepared a Typological Manual for its historic center, which concerns the specifics (materials used, design assumptions, etc.) for the construction of historical building.

## Municipality of Corfu

The Corfu Municipality Sola Shareholder Company SA (former Corfu Municipality Enterprise for Common Welfare), which is the unique stakeholder. It has great experience in the field of promotion and management of cultural affairs. In particular, for Corfu is already available a Management Plan for the Old Town, for the preservation of historical buildings.

## Regional Direction for the Cultural and Landscape Heritage of Puglia

The “Regional Direction for the Cultural and Landscape Heritage of Puglia”, is a territorial division at the general management level of the Italian Ministry for Cultural Heritage and Activities which furthers cultural affairs in the geographic area under its jurisdiction. These activities principally concern the preservation and maintenance of the bound architectural patrimony. In particular, the Office imposes the necessary interventions to the owners and/or holders of cultural heritage in order to assure the maintenance.



### About the newsletter

The S.M.ART.BUILT. NEWSLETTER is published every 4 months, containing information about the progress and the outcomes of the project.

It is electronically distributed in portable document format (pdf). Printed copies can be supplied on demand.

For any additional information regarding this publication, you may contact the publication coordinator via e-mail, using the address [smartbuilt.bari@gmail.com](mailto:smartbuilt.bari@gmail.com)