

# **CONCEPT of PREPARATION and REALIZATION of Virtual Museum of Non-Destructive Testing (VMNDT)**

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## **Abstracts**

The idea of elaboration of virtual museum of non-destructive testing was proposed by the author and presented in a series of reports, which were made upon the request of the Board of Directors of the European Federation of NDT. The BoD of EFNDT supported the idea of VMNDT realization and proposed to organize the Committee, which shall join leaders of NDT and try to find resources for this project (Add—the letter of President EFNDT)

## **INTRODUCTION**

Internet-based technologies represent an opportunity to decide on a new cultural and educational level objectives by making available more than ever accumulated funds and knowledge, attracting new (including young) audience through virtual information - educational environments. Not every field of knowledge has the ability to develop and maintain their own web site, which is connected with the high cost of technology platform, the absence of the concept of creation and a lack of IT professionals in the field of interactive propaganda. The study IT - solutions used in the present, found that all of them are focused on the tasks of accounting and cataloging and are not paying enough attention to the development and popularization of digital expositions.

Currently on the market, there are several museum information systems (KAMIS, NIKA-museum), which solve task of cataloging and accounting, but do not provide specific mechanisms to display 3D-exhibits. The introduction of traditional automated systems often leads to the need to improve the existing IT infrastructure. The cost of implementing a virtual museum in this case is not always compatible with the available financial resources. In this regard, it is urgent to develop easy-to-use, functional and scalable solutions with low cost of ownership.

Based on the analysis, it was found that such projects are implemented by Google as an Internet service for the most famous museums in the world. The main idea of creating Internet-service "Virtual Museum" is to provide open access to museum thematic expositions from any computer that will change the shape of museum visits and a review of the exhibits. This online service will be available to all interested users.

The innovative idea is to provide applications as services (model SaaS, Software as a Service). A distinctive feature of the Internet service is that all software and hardware is up to the service provider (SaaS-provider), and access to the service by using the web browser is simple.

The operating system you are using is Windows Azure, which allows applying a modern form for the development of NDT-applications. Internet-service has an economic advantage in the market, as the Internet-service user does not buy the application and pay for its use. Thus, there is no need to purchase additional hardware and software, the expertise to administer and maintain the system, staff development, thereby achieving economic effect, which is considered one of the main advantages of SaaS. Thus, the project allows the possibility of using high-tech services to expand the territory of the NDT through a virtual multi-museum.

### **IN FRAMES OF VMNDT PLANS THE ORGANIZATION AT VARIOUS LEVELS AND FORMS OF ACTIVITY WHICH INCLUDES:**

- the collection and preservation of artifacts and knowledge related to the history of ideas, tools and technologies of non-destructive testing ,
- promotion of non-destructive testing ideas in order to attract public attention to the issues of reducing technology risks and the protection of the ecological situation during the exploitation of high risk objects ,
- systematization of research results leading experts and organizations in the virtual fund of the Museum at different levels of information (education, popularize and promote the operational use of intelligence, gained in the field of NDT),
- the use of the Museum as a base for non-destructive testing (including collection of specimen, devices and technologies) for a network of accreditation and certification organizations in the process of learning and knowledge level control,
- coordination of works on creation of the Encyclopedia of nondestructive testing, including information database of systematic, scientifically - balanced knowledge of the theory and practice of the NDT, the key concepts, methodological approaches , information on new technologies, methods and means of non-destructive testing , showing examples of disasters and catastrophes that have occurred because of violations or non-destructive testing rules,
- correlation and synergy of encyclopedia information base with the exposition of Museum (Encyclopedia integrated into the Museum),
- the use of the Museum as a permanent coordination and communication centre of professionals in research,
- virtual museum should be a forum for professionals, in which they will promptly solve issues of specific practical problems,
- use interactive museum for acquaintance of children and young people with the ideas and the subject of NDT on scientifically - popular level.

For the last couple of years, science museums in different countries have been developing special educational projects, which are focused on work with students and schoolchildren. To coordinate such projects scientific and technical museums of Great Britain, the Netherlands, Singapore, the USA, Finland, France and Japan have joined forces and created, using the unlimited possibilities of the Internet, an educational museum community - Science Learning Network ([www.sln.org](http://www.sln.org)), which includes the "Basic" schools. In virtual museums of the history of science gets applied nature. In England it is called "the public understanding of science". The advantages of a virtual museum: it's not just the perspective of near-future education, but it is an effective tool for development and NDT.

## THE PURPOSE AND TIME OF REALIZATION OF THE CONCEPT.

The purpose of the Concept is the intensification of the process of knowledge creation and dissemination of NDT ideas through the permanent virtual museum - VMNDT, ensuring the collection, systematization, training and development of NDT ideas NC, integration of interaction within EFNDT.

Implement the concept envisaged for 2014-2017 years.

## WAYS AND MEANS OF IMPLEMENTING THE VMNDT PROJECT.

### ***For implementation of the VMNDT project it is necessary:***

- to create a permanent institution with BoD EFNDT - the center of activity, coordination and communication during the project;
- to find sources of financing,
- to develop and approve an action plan needed for implementing the Concept, which will depend on the amount of funding.

### **The author's Offers :**

- to involve a permanent group activity, coordination and communication,
- to prepare a request for funding under the European program (for instance "Horizon-2020"),
- at the presence of funding to prepare by consultant Working Group an action plan to implement the concept,
- in the plan provide the participation of representatives of the countries EFNDT for increase funding of the project through the active involvement of national and private investments;

### **RESULTS:**

Creating of an interactive virtual space, in which there will be concentrated all the intellectual achievements of science and technology through the organization of the museum and Encyclopedia of non-destructive testing and technical diagnostics.

The rapid collection and reporting of scientific and technological developments and processes of certification and attestation.

Preservation and promotion of information in the field of NDT.

Using the museum as a base for a network of certification and assessment centers (Certification Body) for the preparation and control of knowledge.

Creating the conditions for research and teaching with the help of a virtual museum fund, in particular the encyclopedia NDT.

Using an interactive museum exhibits for children and young people for acquaintance with the history, achievements and new NDT ideas on scientific and popular level.