

Heritage software archive, a mirror in Bologna

Six billion source files, 90 million projects. They are the dimensions of the Titanic rescue company **programs around the world**, which the 'Software Heritage' project wants to transfer into **copy** synchronized to **Enea center in Bologna**, in **first Italian node** of the project.

The 'Bolognese' novelty was presented in the morning during **After Digital Futures**, the event organized by the Digital Agenda of Emilia-Romagna and dedicated to new technologies and the spread of digital culture. Software Heritage has been online for about a year: an Alexandria library with billions of source codes, the backbones of software programs.

The **project**, born in Roquencourt, France, is now being retransmitted **under the Two Towers**, inside the Enea research center. A monumental archive – not by chance the project is developed in collaboration with the **Unesco**– which aims to contain all the known software on the face of the earth.

For now, and with completely enviable numbers, Software Heritage holds within itself **freely available** is **open source**, programs like the one that commanded the Apollo 11 instruments. The Bolognese mirror of the archive will be the first in Italy. The project is controlled by Inria, the French public innovation agency, but strong sponsors are some big, like Intel or Microsoft.

Mega-software archive opened in Bologna: "It will be available to all" | VIDEO

The goal is not just to keep technological 'relics'. The aim is to make this store of knowledge "talk" with the present, and in a freely accessible form.

Roberto Di Cosmo, professor of computer science at the University of Paris, is convinced of this, and together with Stefano Zacchiroli he animated the project in France with the help of the French research institute and here he has found a bit of space, both in the University (the university finances the project with a small amount) and in the Region, represented by the Councilor for Education Fabrizio Bianchi. The novelty was also presented by Simonetta Pagnutti and Paola Salomoni, respectively from Enea and Unibo.

The software produced by man "**it is a heritage**" comments Di Cosmo, who explains how to "accept and make available to everyone all the source code" allows not only to keep track of what has been done, but also "to build a single catalog for the source codes, a real archive, with search keys and metadata", a research infrastructure to analyze all the code present in the world, in an open and accessible form.

Software archive in Bologna: beyond Big Data, Big Codes

"90 percent of the new code, of the new programs, is based on the old one," notes Di Cosmo, who however admits that the community of programmers and developers "has not been able to convince themselves until now of the need for an infrastructure" that it contained all this knowledge.

The **mega-store** of software code, stationed in France, will have its own redundant copy – in technical terms '**Mirror**', mirror-here in Bologna. All very precious material for academics and 'geeks', **a real mine** of freely usable code to potentially produce children and grandchildren, for generations.

The idea is that of a software infrastructure, of programs that are used all day, or at least of a repository from which to take data and rework them, to develop new ideas, both for academic and non-academic purposes. Not only that, the location close to other centers of data research (not least the weather center and the Technopole), will create – these promoters' desires – the breeding ground for the flourishing of new hi-tech professions , obviously on the software side.

It is the vision advocated by Bianchi, who observes: "In our strategy we had a goal of making Bologna and Emilia-Romagna a European research hub in the field of big data and super-calculation. Now it also becomes for the big code, confirming itself as a true European 'data valley', claims the councilor. "Protecting this extraordinary archive of digital knowledge, contributing to the goal of collecting, preserving and above all sharing the history of computational thinking from which the technological revolution we are experiencing originated".