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GLOBAL RESEARCH INFRASTRUCTURES (GSO)

interview with Giorgio Rossi, present Chairman of GSO and Deputy Chairman of ESFRI

On 15 December last, INFN hosted the 5th meeting of the GSO (Group of Senior Officials), composed of ministerial representatives for Global Research Infrastructures (GRI) of the G8 member countries and of Australia, Brazil, Canada, China and Mexico.
The meeting provided an opportunity to explore the issue of research infrastructures with Giorgio Rossi, representative of Italy in the GSO - of which he is the rotating Chairman - and Deputy Chairman of ESFRI (European Strategy Forum on Research Infrastructures), the European institution founded in 2002 to support coherent development policies of European research infrastructures.

Research infrastructures constitute one of the strategic priorities for implementation of the European Research Area. Why? What do they represent and what is their value?

Research infrastructures (RI) provide the opportunity for the most talented researchers to access use of the most powerful and advanced scientific instruments for their research, based solely on the viability of their proposal. RI thus represent the backbone of the European Research Area because they make excellence available, provide the conditions for mobility and facilitate the development of interdisciplinary skills. The value in terms of scientific return from the investment in RI is very high because they are intensively used by the best researchers on cutting edge scientific topics, including the “big challenges” (climate, health, ageing, energy, etc.). The investment in RI with competitive open access has a high strategic value. Currently, RI costs represent 3% of the annual Gross Expenditure on Research and Development (GERD) of European countries.

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Which are the main challenges facing Europe and what do you therefore consider to be strategically important?

Europe's challenges related to the "knowledge society" are those of an increase in investment in new knowledge and its dissemination. The Lisbon objectives for 2010 (3% of GDP of investment in research, 8 researchers per thousand workers, mobility between research, industry and services) were and are correct, but the delay is significant and the crisis on the one hand makes these objectives more urgent and on the other penalises investment. RI are a key element, which also requires substantial and continuous investments since the skills are not acquired once and for all, but must be renewed with the new generation of scientists and technologists, otherwise they can be lost for ever.

Which are the projects that ESFRI indicates as priorities in its roadmap and which criteria have been followed to identify them?

ESFRI has the mandate to identify the RI necessary for European competitiveness, in all research fields, from social sciences and cultural heritage to the environment, from bio-medicine to energy, from the analysis of matter to physics. The ESFRI roadmap includes 48 projects and it has been necessary to define a number of priorities that are reflected in the Horizon 2020 figure for implementation of 60% of the roadmap by 2015. Today ESFRI is working on a new roadmap which will be released in 2016 and that will be substantially more agile than its predecessor. It will include 25 projects selected as well on the base of their scientific interest, also according to the "maturity" of the proposal in terms of governance, sustainability, financial plan for the construction and operation phase and, finally, the criteria of "pan-European added value". Projects will remain in the roadmap for a maximum of 10 years. If they successfully reach implementation they will be described in the *landscape* of infrastructures of pan-European importance, together with other RI (national or international) that provide access for European researchers. There are (and there must be!) indeed many excellent and entirely necessary RI projects which, however, do not have their most appropriate or most efficient implementation in the European "format". The most important ones will be identified in the *landscape* of the ESFRI 2016 roadmap.

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The ESFRI roadmap represents a point of reference and a tool for the scientific community and for the policy makers of the Member States of the European Union. Which are the actions that the governments of European countries in general, and of Italy in particular, should take at a national level?

ESFRI has developed a method and indicated projects with a broad impact for the construction of the European Research Area. European countries should consider, in a concerted manner, that investment in RI is an opportunity for a recovery plan to exit from the crisis, and a formidable tool to train and strengthen a generation of young researchers and developers of innovative technical solutions, that translate into competitiveness for Europe and rooting of scientific culture in the economy.
The industry based on physics counts for more than 15% of the European economy and is second only to manufacturing, exceeding the construction industry. This suggests that it is necessary to feed the base with new knowledge and the chain of young scientists and engineers who, due to their skills and number, are able to exploit them, develop them and translate them into innovative products, services and methods.

Which were the main issues discussed and the most significant conclusions emerging from the last GSO meeting?

The discussion focused on practical initiatives. Based on the definitions of Global Research Infrastructure (GRI), i.e. a single infrastructure at the global level with competitive access for all scientists worldwide, a list of approx. sixty proposals was put together and their potential illustrated. In the next few months, the GSO will identify those GRI proposals with the broadest interest and willingness of countries to immediately proceed in exploring ways to implement them. We are therefore moving from the general definition of GRI to the feasibility study of a number of specific cases. Italy has made four proposals in different areas (environment, biology, cultural heritage and physics). Among them is the proposal for internationalisation of the Gran Sasso National Laboratories, a visit of which was offered to the GSO during the second day of the meeting, together with the analysis of the possible initiatives for a GRI of the underground laboratories.