OVERSIGHT OF SCIENCE AND TECHNOLOGY

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The health and wealth of contemporary society depends on scientific research and technological innovation. Gone are the days when economic might depended on fuming engines. Instead we face the challenges of a "Knowledge Economy" and societies that are "brainy" rather than "brawny" In particular, as practising scientists, we are asked to communicate openly with the educated public and to take into more consideration those matters which impact on the integrity of the research, "future generations, human dignity and integrity, info-ethics and sustainability". The guidelines for the new European Research Area give them substantial prominence.[1]

One of the most important questions that require reflection is this: How does one ensure that limited resources are allocated most appropriately to ensure the best return to society in terms of advancing knowledge and promoting development? Consequently, how does one provide oversight of science and technology?

I use the term "oversight" specifically instead of "regulation" because the latter may imply undesirable legal or political intervention that could well damage science. There is considerable experience with oversight mechanisms depending on peer review. They are employed by most advanced research programs to approve and fund proposals, to protect the participation of human subjects, and the use of animals or hazardous substances in research. They give due weight to the social and economic implications of the proposed research.

Despite their imperfections, peer review mechanisms have functioned much as a "Guardian" of ethics in science, at least in so far as providing oversight of publicly funded science in advanced countries.[2]

The current US government is now proposing that all agencies submit

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[1] See *Science and Society - Action Plan*. European Commission, 2002.

[2] Felice A; 'Guardianship by Peer Review in Genetic Engineering and Biotechnology' in: E. Agius and S. Busuttil (eds): *Germ Line Intervention and our Responsibilities to Future Generations*. Dordrecht and New York, Kluwer Academic Publishers 51 – 63, 1998.

to peer review all scientific evidence that shapes any regulatory or policy decision: "The proposal enshrines a basic scientific process".[3]

However, little attention is given to the field of privately funded science which has expanded mostly in the more sensitive areas connected with life science research in the last few decades. Clearly, boards of directors and outside advisory bodies must carry part of the onus. However, while protecting the essential privacy of corporate research, one has to find ways to empower oversight of this sector too.

One can see that strong oversight mechanisms depending on peer review are an integral as well as essential component of a well-organised and well-funded national program for scientific research, technological development and innovation.

[3] Science, *301*, p 1307, 2003.