

The Republic of Open Science

The institution's historical origins and prospects for continued vitality

By

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Abstract

In most modern economies scientific and technological research activities are conducted in two distinct organizational modes: commercially oriented R&D based upon proprietary information, and non-commercial “open science.” When taken together and kept in proper balance, these form a *complementary* pair of institutionally differentiated sub-systems. Each can work to amplify and augment the productivity of the other, thereby spurring long-term economic growth and improvements of social welfare in knowledge-driven societies. This paper examines the historical origins of open science and its modern, critically important role in the allocation of research resources. These institutions, being generally less well understood and having less robust self-sustaining foundations than the familiar non-cooperative market mechanisms, remain more vulnerable to damages from collateral effects of shifts in government policies, particularly those that impact their fiscal support and regulatory environments. After reviewing the several challenges that such policy actions during the 20th century's closing decades inadvertently had posed for continued effective collective explorations at the frontiers of scientific knowledge, the discussion draws attention to the creative responses that were elicited from academic research communities. Those reactions to the threatened curtailment of timely access to data and technical information about new methods and findings came in a widening stream of technical and organizational innovations designed to expand and enhance infrastructural protections for open access in scientific and scholarly communications. They were practical, “bottom-up” initiatives that provided concrete, domain relevant tools and organizational routines whose adoption subsequently could be reinforced by “top-down” policy guidelines and regulatory steps on the part of public funding agencies and international bodies. The non-politicized nature of that process as well as its effective outcomes should be read (cautiously) as positive portents of the future vitality of the Republic of Open Science – and of those societies that recognize and nurture this remarkable social innovation.