

Understanding and Reforging the ‘Compact Between Science and Society’

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Vannevar Bush founded the successful post-war mission of the United States National Science Foundation on five fundamental principles.¹ These included protection of basic research, and the institutions housing it, from direct control of the funder or immediate demands such as the race to applications Bush himself had overseen as director of the Manhattan Project. A relationship of trust grew by housing the entire funding apparatus within the US democratic system.

The intent extended to post-war New Zealand, but was embodied imperfectly in the Department of Scientific and Industrial Research (DSIR), which was not independent of government. The Marsden Fund provides a more fitting implementation, beloved by the scientific community, but beset by the challenges of hypercompetition.

The concept of Bush’s compact between ‘Science and Society’ seems to be largely forgotten within the New Zealand Science Community. Reforging the fundamental basis for trust and stability in a nation’s political economy of science funding has required reconsideration since the end of the Cold War. In the 1990s, recognition grew that applied and fundamental science were complementary rather than competing endeavours.² Grand challenges in climate change and the environment began to be invoked.^{3,4} More recently, recognition of the importance that gender, ethnic, and geographic diversity provide a better mirror between science and society has been echoed by the clear need to include social science in solving any large problem.⁵

In today’s New Zealand, the institutional hypercompetition for contestable research funds leaves little room for trust. An open debate about how to reforge trust and reciprocity deserves deep consideration. Concerns about ‘Silencing Science’ voiced by Hendy⁶ remain unsolved, and lost in a noisy new balkanisation that has emerged over whether science can embrace mātauranga and indigenous knowledge. A commission or body capable of developing the philosophy and ethics underlying the search for truths and utility from science and research may be needed. Delineation and trust is likely a prerequisite to the practical implementation of ethical standards by institutions, and along with efforts to more fill a long standing gap in the development of science policy for New Zealand.

Vannevar Bush’s full essay, “The Endless Frontier” can be found online, and the Five Fundamentals appearing at its end are reproduced here to inspire consideration.

<https://www.nsf.gov/od/lpa/nsf50/vbush1945.htm#ch6.3>

Five Fundamentals

There are certain basic principles which must underlie the program of Government support for scientific research and education if such support is to be effective and if it is to avoid impairing the very things we seek to foster. These principles are as follows:

1. Whatever the extent of support may be, there must be stability of funds over a period of years so that long-range programs may be undertaken.

2. The agency to administer such funds should be composed of citizens selected only on the basis of their interest in and capacity to promote the work of the agency. They should be persons of broad interest in and understanding of the peculiarities of scientific research and education.
3. The agency should promote research through contracts or grants to organizations outside the Federal Government. It should not operate any laboratories of its own.
4. Support of basic research in the public and private colleges, universities, and research institutes must leave the internal control of policy, personnel, and the method and scope of the research to the institutions themselves. This is of the utmost importance.
5. While assuring complete independence and freedom for the nature, scope, and methodology of research carried on in the institutions receiving public funds, and while retaining discretion in the allocation of funds among such institutions, the Foundation proposed herein must be responsible to the President and the Congress. Only through such responsibility can we maintain the proper relationship between science and other aspects of a democratic system. The usual controls of audits, reports, budgeting, and the like, should, of course, apply to the administrative and fiscal operations of the Foundation, subject, however, to such adjustments in procedure as are necessary to meet the special requirements of research.

Basic research is a long-term process - it ceases to be basic if immediate results are expected on short-term support. Methods should therefore be found which will permit the agency to make commitments of funds from current appropriations for programs of five years duration or longer. Continuity and stability of the program and its support may be expected (a) from the growing realisation by the Congress of the benefits to the public from scientific research, and (b) from the conviction which will grow among those who conduct research under the auspices of the agency that good quality work will be followed by continuing support.

References

1. Bush V. Science, the endless frontier. *Science*. Published online 1945.
2. Stokes DE. Pasteur's quadrant : basic science and technological innovation. Published online 1997.
3. Lubchenco J. Entering the century of the environment: a new social contract for science. *Science*. 1998;279(5350):491-497.
4. Hessels LK, van Lente H, Smits R. In search of relevance: the changing contract between science and society. *Science and Public Policy*. 2009;36(5):387-401. doi:10.3152/030234209x442034
5. Johnson EB, Menjivar C, Kidd N, Washington HM. A New Compact for S&T Policy. *Issues in Science and Technology*. 2022;38(2). <https://issues.org/new-compact-science-technology-policy-nelson-forum/>
6. Hendy SC. Silencing science. Published online 2016.