

COMMENTARY

Who has the ear of the president?

50 years after the appointment of the first presidential science adviser, the White House is flooded with scientific knowledge. **Roger Pielke Jr** suggests how the next administration might develop ways to use it best.

On 15 November 1957, as part of his response to the Soviet launch of Sputnik, President Dwight Eisenhower swore in James Killian, president of the Massachusetts Institute of Technology in Cambridge, to the newly created position of special assistant to the president for science and technology. Since then, 14 men — almost all physicists — have served 10 presidents as ‘science adviser’, as the position is more commonly known.

A recent article in *Physics Today* looked back wistfully on the position’s early years¹: “Never before or since have scientists had a firmer influence on the reins of power that direct national policies.” Recommendations that accompany such nostalgia, perhaps most evident during the term of the current and longest-serving science adviser John Marburger, draw more from legend than from history, with far more attention paid to how science advice is given rather than to how it is used.

The president today receives an almost overwhelming flood of expert advice — from government committees, national academies, national and international scientific organizations, self-organized scientific groups, advocacy groups, and many others. By some estimates, the activities of more than 18,000 governmental science and technology advisers generate 6 new reports every day. The president is thus hardly in need of more scientific advice. The central challenge of managing expertise in today’s government is to make effective use of the flood of information that threatens to drown decision-makers.

Lessons from the past

During 2005 and 2006, I interviewed seven science advisers who served under presidents from Lyndon Johnson to George W. Bush². Although the role of each science adviser was as different as each president, some characteristics remain constant. Neal Lane, the second science adviser to President Bill Clinton, explains that: “You have to support the president in his policies, whatever those policies are, and you have to do that while preserving your integrity as a scientist and the integrity of your office. If the president says something that’s just wrong scientifically, then you’ve got to figure out how to explain to the American people what the president really meant to say

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— Neal Lane



President Eisenhower (right) chats with the inaugural science adviser James Killian at a dinner in 1959.

in such a way that everybody is okay.”

Contrary to popular wisdom, the role of science adviser was in decline from the moment that President Eisenhower tellingly rushed through Killian’s appointment ceremony in order to depart for an eagerly anticipated golf vacation in Augusta, Georgia. And in his 1961 farewell address, Eisenhower expressed considerable wariness about scientific expertise in government: “In holding scientific research and discovery in respect, as we should, we

must also be alert to the equal and opposite danger that public policy could itself become the captive of scientific–technological elite.”

Yet as the adviser’s influence has declined, scientific and technological expertise at the highest levels of government has been triumphant. William T. Golden, investment banker, philanthropist and a chief architect of the science–adviser position, wrote in 1950 that the government could draw on “somewhere between 20 and 200” top scientists. By 2003 there were approximately 8,000 scientists serving on about 400 federal advisory committees. Without effective mechanisms to turn advice into options, and options into action, the often

heroic efforts of these scientists will amount to little more than academic exercises.

As science and technology have become more important to governmental decision-making over the past half century, one result has been the reduced importance of a personal science adviser to the president. Because policy issues with scientific or technical content are ubiquitous, it is unrealistic to think that one person with a small staff can hope to serve as the president’s sage.

In any case, a president does not make scientific judgements. A president makes political judgements that may involve scientific or technical considerations in the evaluation of alternatives for action. Jack Gibbons, President Clinton’s first science adviser, explains: “Science is not an overarching national goal for the president. It’s only as it serves to help achieve these larger goals that science takes its place in the crown of important activities for the president.” Science is a determining factor in decision-making only when there is very little political conflict. By contrast, intense political conflict magnifies small differences over science as a proxy for political debate, making the management of expertise all the more important to prevent experts simply cancelling each other out³.



Jack Gibbons speaks at a press conference in 1992. He later became science adviser to President Clinton.

Structural factors further limit the role of the science adviser in presidential decision-making. In 1976, Congress reversed President Richard Nixon's earlier decision to abolish White House science advice when it formalized the Office of Science and Technology Policy (OSTP) in legislation and with it created a second role for the president's science adviser as OSTP director. Gibbons says that this legislation, perversely, meant that the science adviser would never be among the 'inner circle' of White House advisers because, unlike other special assistants to the president, the OSTP director could be asked to give Congressional testimony. Calls for institutional reform to bring the science adviser closer to the centre of White House decision-making, such as by reinstating the President's Science Advisory Committee⁴, are therefore unlikely to succeed.

The inner circle

Personal relationships are also an important factor. Lane emphasizes that key political decisions were often made by the president's closest staff, most of whom forged their relationship with the president in the heat of election campaigns. It is telling that Jerome Wiesner, who served under President John F. Kennedy, seems to be the only science adviser who participated in a presidential candidate's successful election campaign. A fundamental political reality is that decision-making at the highest levels of the White House will always be based on the idiosyncrasies of the president and his or her staff regardless of the method by which science advice is delivered.

Yet the science adviser is neither irrelevant nor powerless. The OSTP works with the Office of Management and Budget, which prepares the president's budget for the entire government. "In today's OSTP, we set our work schedule and products deliberately to synchronize with the budget cycle," says Marburger. Coordination of research and development

budgets across federal agencies is therefore central to the job. No other cross-department area of government activity has such a unique input into the budget process, which may help to explain why research and development spending has increased steadily for decades. The downside of this unique role is that the science adviser and the OSTP must be careful to avoid having their views discounted as coming from an internal 'science lobby'.

In balancing these challenges, science advisers have adopted vastly different roles. George Keyworth, who served under Ronald Reagan, says he found his niche by focusing his advice solely on the Strategic Defense Initiative. Ed David recounts how he was enlisted to help President Nixon's re-election chances by having NASA reschedule its Apollo moon launches away from the election. Donald Hornig, President Johnson's adviser, related that science was often instrumental in international relations as "a wonderful lubricant for foreign policy initiatives". Such differentiated responsibilities and experiences challenge the notion of the science adviser as the president's sage. Whoever is next appointed to the advisory post will no doubt shape the relationship with the president in his or her own unique way.

Even if the science adviser has rarely, if ever, held the 'reigns of power' over the past 50 years, scientific and technical expertise has nonetheless triumphed in government. Historian Daniel Kevles at Yale University in New Haven, Connecticut, calls the contemporary political environment "unbelievably pluralistic" in which "there is hardly an issue you can think of that doesn't turn to some extent on technical knowledge". Thus, the challenge of enabling effective science advice under the next president will not be met by identifying one person or even a committee to serve as a fountain of

wisdom on all matters scientific or technical. Such quaint notions ignore the lessons and realities of science advice in government.

The reality of pluralistic policy-making helps to explain why today so many issues involving science are politicized, and will continue to be so, under all future presidents. The scientific community can assist the next president by focusing greater attention on the overwhelming supply of expert advice beyond the White House that feeds into all aspects of government decision-making⁵. In practical terms, this would mean eschewing calls to separate science from politics, and fostering instead more sophisticated ways to integrate science with the needs of policy-makers.

The triumph of expertise

Scientists in government need more effective means to elicit from decision-makers the policy-relevant questions that need to be addressed by scientific and technical experts, building on the experiences of the congressional Office of Technology Assessment.

Another useful strategy would be to ask some expert advisory committees to go beyond the discussion of technical matters by presenting a wide range of policy options to decision-makers. This would require thinking about scientific advice and its implications more comprehensively, because discussion of policy options requires integrative, interdisciplinary knowledge. The science adviser (and the OSTP) might also contribute to this process by serving as an in-house 'think tank' for the president, a function the social scientist

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Daniel Yankelovich calls an "options czar". Presenting options would help preserve the public credibility of the science adviser by clearly delineating the differences between advice, advocacy and decision-making⁶.

Hopes within the science community that the next president will somehow return the science adviser to a position of power are based on unrealistic expectations. The relationship between the next president and his or her science adviser will be as unique and idiosyncratic as those under the past ten presidents. Far more important for effective decision-making will be how the next administration manages and uses the vast infrastructure of expert advice that it will inherit. ■

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