

PREFACE

The National Science Board began its study of long-term trends and policies for the science and engineering (S&E) workforce in 2000, at the end of the longest peacetime economic expansion in US history. As the study draws to a close, we are cognizant of growing unemployment for scientists and engineers in some fields, reflecting the current downturn in the business cycle. Existing forecasting models and data for policy and planning do not support surgical interventions in the workforce responsive to short-term fluctuations in supply and demand. These tools should be improved, but that task is beyond the scope of this report.

Even with improved methodological tools, Federal policy cannot react primarily to short-term skill shortages or surpluses, but rather to the long-term opportunities and needs for the Nation. The necessity for sophisticated, costly facilities for science and engineering education, well-qualified faculty, and the long lead-time required to attain a baccalaureate, much less an advanced degree in science or engineering, precludes a “just-in-time” delivery approach to policies to sustain and strengthen the S&E workforce.

Current data are sufficient to identify several significant trends for the global and domestic science and engineering talent pools. These trends compel a forward-looking Federal response based on national needs. The President’s Council of Advisors for Science and Technology (PCAST), the House of Representatives in its National Science Policy Study, *Unlocking Our Future*, the Council on Competitiveness, and The United States Commission on National Security/21st Century among others have argued for a strengthened Federal focus and action on national needs for science and engineering research and education.

The Federal Government is uniquely qualified to establish S&E workforce policies that transcend national boundaries or are addressed to national-level needs for the S&E workforce—such as overall skill mix and mix of participating demographic groups. We as a nation have a long-term challenge to sustain US global advantages in science and technology that rely on the capabilities of our workforce. Federal agencies working with other participants in and beneficiaries of US science and engineering must take up this challenge.

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