

Survey response for the United States

OECD database of governance of public research policy

This document contains detailed responses for the United States to the survey on governance of public research policy across the OECD. It provides additional background information to the OECD database of governance of public research policy as described in Borowiecki, M. and C. Paunov (2018), "How is research policy across the OECD organised? Insights from a new policy database", *OECD Science, Technology and Industry Policy Papers*, No. 55, OECD Publishing, Paris, <https://doi.org/10.1787/235c9806-en>. The data was compiled by the OECD Working Party on Innovation and Technology Policy (TIP). Data quality was validated by delegates to OECD TIP Working Party the in the period between March 2017 and May 2018. Additional references that were used to fill out the questionnaire are indicated.

The data is made freely available online for download at <https://stip.oecd.org/resgov>.

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Abbreviations and acronyms

BHE	Board of Higher Education
BoR	Board of Regents
CHE	Commission on Higher Education
CRS	Congressional Research Service
CPEC	California Postsecondary Education Commission
CSU	California State University
DARPA	Defense Advanced Research Projects Agency
GRAD Act	Granting ReReferences and Autonomies for Diplomas Act
HEIs	Higher Education Institutions
IRP	Intramural Research Program
IWG	Interagency Working Group
MIT	Massachusetts Institute of Technology
NASA	National Aeronautics and Space Administration
NGO	Non-Governmental Organization
NIH	National Institutes of Health
NSF	National Science Foundation
NSTC	National Science and Technology Council
OMB	Office of Management and Budget
OSTP	Office of Science and Technology Policy
PCAST	President's Council of Advisors on Science & Technology
PF2.0	Performance Funding 2.0
PRIs	Public Research Institutes
SBE	Subcommittee on Social, Behavioral and Economic Sciences
SCH	Student Credit Hour
SciSIP	Science of Science and Innovation Policy
SMEs	Small and medium-sized enterprises
SoSP	Science of Science Policy
STEM	Science, Technology, Engineering and Math
STI	Science, Technology and Innovation
THEC	Tennessee Higher Education Commission
UC	University of California
USA	United States of America
USA-CA	California
USA-LA	Louisiana
USA-MA	Massachusetts
USA-SC	South Carolina
USA-TN	Tennessee

Survey of public research policy

Topic 1: Institutions in charge of priority setting, funding and evaluations

Table 1. Questions on institutions in charge of priority setting, funding and evaluations of universities and PRIs

Question	Response
<p>Q.1.1. Who mainly decides on the scientific, sectoral and/or thematic priorities of budget allocations for a) HEIs and b) PRIs?</p> <p>c) Which are the main mechanisms in place to decide on scientific, sectoral and/or thematic priorities of national importance, e.g. digital transition, sustainability? Please describe who is involved and who decides on the priorities (e.g., government, research and innovation councils, sector-specific platforms including industry and science, etc.).</p> <p><i>(This question does not refer to who sets overall science, technology and industry priorities. This is usually done by parliaments and government. The question refers to decisions taken after budgets to different ministries/agencies have been approved. Scientific priorities refer to scientific disciplines, e.g. biotechnology; sectoral priorities refer to industries, e.g. pharmaceuticals; and thematic priorities refer to broader social themes, e.g. digital transition, sustainability, etc.)</i></p> <p>d) From 2005-16, were any significant changes introduced as to how decisions on scientific, sectoral and/or thematic orientation of major programmes are taken (e.g. establishment of agencies that decide on content of programmes)?</p> <p>References: National Science and Technology Council (2016), The White House (web page), Available at: https://www.whitehouse.gov/ostp/nstc (Accessed: 27 October 2016). About DARPA (2016), Available at: http://www.darpa.mil/about-us/about-darpa (Accessed: 29 October 2016).</p>	<p>a and b) In the United States, the Federal States are responsible for HEIs, while the federal government (i.e. federal Departments such as the Department of Defense) sets national goals for federal science and technology investments at PRIs. The National Science and Technology Council (NSTC) prepares research and development strategies that coordinate public investment of federal agencies such as the National Institutes of Health (NIH) (National Science and Technology Council, 2016). An exception is the Defense Advanced Research Projects Agency (DARPA). It has the autonomy to set the sectoral, scientific, and thematic priorities it finds the most appropriate to achieve its mission goals (About DARPA, 2016).</p> <p>c) Missing answer.</p> <p>d) No major reforms made.</p>

Q.1.2. Who allocates **institutional block funding** to a) HEIs and b) PRIs?

(Institutional block funds (or to general university funds) support institutions and are usually transferred directly from the government budget.)

c) Who allocates **project-based funding** of research and/or innovation for HEIs and PRIs?

(Project-based funding provides support for research and innovation activities on the basis of competitive bids.)

d) Is there a transnational body that provides funding to HEIs and PRIs (e.g. the European Research Council)?

e) What is the importance of such funding relative to national funding support?

f) From 2005-16, were any changes made to way programmes are developed and funding is allocated to HEIs and PRIs (e.g. merger of agencies, devolution of programme management from ministries to agencies)?

a) Institutional block funding to HEIs is under the responsibility of the Federal States. Features of the system for public funding of higher education vary across different states (Center for Higher Education Policy Studies, 2015, p. 140). In the state of Massachusetts, for instance, the Board of Higher Education (BHE) allocates funding to HEIs. BHE is an independent agency responsible for defining the mission of public higher education in Massachusetts; it coordinates the Federal State departments and institutions (About the Department of Higher Education, 2016). Similar arrangements are in place, among other, in Louisiana (i.e. Board of Regents, BoR) and South Carolina (Commission on Higher Education, CHE) (Center for Higher Education Policy Studies, 2015, p. 147). In the State of California, block funding for public HEIs is negotiated with the Governor of the State. The University of California (UC) and the California State University (CSU) represent the majority of public HEIs. They request their budgets and negotiate them separately with the Governor. The Californian State Assembly and the State Senate review the resulting proposals and send them back to the Governor for final approval (Finney et al., 2014, pp. 18-19).

b) Regarding PRIs, national agencies (e.g. National Science Foundation, NSF; National Institutes of Health, NIH; National Aeronautics and Space Administration, NASA, and many more) allocate institutional block funding to PRIs

c) Project-based funding of research and/or innovation is provided at the national agency level. Several large funding agencies are responsible for that. One of them is the National Science Foundation (NSF). It supports fundamental research and education in all the non-medical fields of science and engineering. The NSF funds approximately 24% of all federally supported basic research conducted by the United States' colleges and universities. In some fields, such as mathematics, computer science, economics and the social sciences, the NSF is the major source of federal backing (NSF, 2016). The NSF seeks to fulfil its mission mainly by issuing competitive, limited-term grants in response to specific proposals from the research community. The NSF does not operate its own laboratories, unlike other federal research agencies, notable examples being the NASA and the National Institutes of Health (NIH) (National Science Foundation, 2016).

Its medical counterpart is the National Institutes of Health (NIH). It is the primary agency of the United States government responsible for biomedical and health-related research. It has its own laboratories and PRIs. The NIH both conducts its own scientific research through its Intramural Research Program (IRP) and provides major biomedical research funding to non-NIH research facilities through its Extramural Research Program (NIH, 2016).

The National Aeronautics and Space Administration (NASA) is an independent agency for the civilian space program as well as aeronautics and aerospace research. It also has its own PRIs and facilities and provides project-based funding to external PRIs and research facilities (NASA, 2016).

References:

- Center for Higher Education Policy Studies (2015), Performance-based funding and performance agreements in fourteen higher education systems, Enschede. pp. 127 & 140-147, Available at: <http://doc.utwente.nl/93619/7/jongbloed%20ea%20performance-based-funding-and-performance-agreements-in-fourteen-higher-education-systems.pdf> (Accessed: 18 October 2016).
- Department of Higher Education (2016), Available at: <http://www.mass.edu/about/aboutdhe.asp> (Accessed: 27 October 2016).
- Finney, J. E., C. Riso, K. Orosz, W.C. Boland, and University of Pennsylvania. (2014), From Master Plan to Mediocrity: Higher Education Performance and Policy in California, p. 18-19, Philadelphia (PA), University of Pennsylvania, Available at http://www.gse.upenn.edu/pdf/irhe/California_Report.pdf (Accessed: 08 December 2016).
- NSF (2016), Available at: <https://www.nsf.gov/> (Accessed: 27 October 2016).
- NIH (2016), Available at: <https://www.nih.gov/> (Accessed: 27 October 2016).
- NASA (2016), Available at: <http://www.nasa.gov/index.html> (Accessed: 27 October 2016).

Q.1.3. Do performance contracts determine funding of a) HEIs?

Institutional block funds can be partly or wholly distributed based on performance. (Performance contracts define goals agreed between ministry/agency and HEIs/PRIs and link it to future block funding of HEIs and PRIs.)

b) What is the share of HEI budget subject to performance contract?

c) Do performance contracts include quantitative indicators for monitoring and evaluation?

d) What are the main indicators used in performance contracts? Which, if any, performance aside from research and education is set out in performance contracts?

e) Do HEIs participate in the formulation of main priorities and criteria used in performance contracts?

f) Do the same priorities and criteria set in performance contracts apply to all HEIs?

g) Are any other mechanisms in place to allocate funding to HEIs and PRIs?

h) From 2005-16, were any changes made to funding of HEIs and PRIs?

(In case performance contracts are in place that bind funding of PRIs, please provide information about them.)

a - d) Funding of HEIs is not subject to performance agreements between ministries and HEIs. Performance contracts are, however, in place across Federal States.

Tennessee

Tennessee is one of the states with the longest experience with performance funding in the U.S. and the first funding mechanism was established in 1979. The Tennessee Higher Education Commission (THEC) is in charge of performance contracts with HEIs. The current funding model in the state of Tennessee is in place since 2010. It is known as Performance Funding 2.0 (PF2.0). The Tennessee funding model has two major components. First, performance contracts that include annual targets for quality enhancement in education, Second, there is the funding formula based on current institutional incomes, i.e. revenues from federal funding agencies (Center for Higher Education Policy Studies, 2015, p. 128).

Performance contracts include targets for quality enhancement. Such targets may include, for instance: Accreditation, student satisfaction, and entry level student examination success rate. All public universities and community colleges can earn up to an additional 5.45% of their funding based on productivity outcomes (which is the first funding component presented above), when they do well in comparison to other universities (benchmark) on additional performance funding programme metrics set by the state (Center for Higher Education Policy Studies, 2015, p. 133).

With regard to the funding formula based on university outcomes, the following ten indicators are used: Student Credit Hours; number bachelor's degrees awarded; number of Master's degrees awarded; number of doctoral degrees awarded; research grant funding; student transfers; degrees of academic staff; graduation rate (Center for Higher Education Policy Studies, 2015, p. 130). Universities may apply different weights to certain factors based on their priorities and mission (Center for Higher Education Policy Studies, 2015, p. 132).

Although there have not been yet conducted any large-scale system evaluations, the new system introduced in 2010 has already demonstrated certain positive results: bachelor's degrees awarded have increased by 4.5% annually since initial outcomes formula implementation, compared to 2.6% annual growth prior to formula implementation; associate degrees awarded have increased by 10.7% annually since initial outcomes formula implementation, compared to 2.8% annual growth prior to formula implementation (Center for Higher Education Policy Studies, 2015, p. 135).

Louisiana and South Carolina

Other States with performance contracts between Federal State and HEIs are Louisiana and South Carolina, although South Carolina recently abolished performance contracts. In the state of Louisiana, the Board of Regents (BoR) is in charge of performance contracts with HEIs. South Carolina was one of the first states to introduce performance funding in its public higher education sector. It is also one of the examples of performance funding models that have been abandoned (Center for Higher Education Policy Studies, 2015, p. 147).

e and f) Missing answer.

g) *California*

In the State of California, public funding of public HEIs is based on the number of students enrolled. The system does not feature performance contracts or other incentives for performance. Allocations to the UC system and the CSU system are calculated by multiplying enrolment by an estimated marginal cost per student (Finney et al., 2014, pp. 18-19).

Massachusetts

In the state of Massachusetts, performance contracts are not in place. However, institutional block funds are allocated based on a formula that includes performance indicators. After an variable amount is set aside for operational support, 50% of the remaining funding is awarded based on performance metrics, including the following indicators: number of degrees completed; number of first full math and English courses completed; degrees and certificates per 100 full time equivalent (FTE) students; degrees and certificates awarded to Pell Grant recipients and in high demand disciplines (e.g. science, technology, engineering and mathematics) are weighted more (National Conference of State Legislators, 2016).

h) No major reforms made.

References:

- Center for Higher Education Policy Studies (2015), Performance-based funding and performance agreements in fourteen higher education systems. Enschede. pp. 127-148, Available at: <http://doc.utwente.nl/93619/7/jongbloed%20ea%20performance-based-funding-and-performance-agreements-in-fourteen-higher-education-systems.pdf> <http://www.utwente.nl/cheps> (Accessed: 18 October 2016).
- National Conference of State Legislators (2015), Performance-Based Funding for Higher Education, website, Available at: <http://www.ncsl.org/research/education/performance-funding.aspx> (Accessed: 18 October 2016).
- Finney, J. E., C. Riso, K. Orosz, W.C. Boland, and University of Pennsylvania. (2014), From Master Plan to Mediocrity: Higher Education Performance and Policy in California, p. 18-19, Philadelphia (PA), University of Pennsylvania, Available at http://www.gse.upenn.edu/pdf/irhe/California_Report.pdf (Accessed: 08 December 2016).

Q.1.4. Who decides on the following key **evaluation** criteria of HEIs and PRIs?

Who is responsible for setting criteria to use when evaluating performance of a) HEIs? Who is responsible for b) evaluating and c) monitoring HEIs' performance?

Who is responsible for setting criteria to use when evaluating performance of d) PRIs? Who is responsible for e) evaluating and f) monitoring PRIs' performance?

h) From 2005-16, was any institution created for evaluating HEIs and PRIs or were any changes made to criteria applied for evaluations of HEIs and PRIs?

a to f) Federal states set criteria to use when evaluating performance of HEIs and monitors performance of HEIs. Information on evaluations of PRIs is missing.

Massachusetts

With regard to the state of Massachusetts, the BHE approved the new criteria for evaluation and monitoring in 2015. They were developed by the National Center for Higher Education Management Systems to conduct institutional evaluations of HEIs (Massachusetts Department of Higher Education, 2016).

California

In California, the California Postsecondary Education Commission (CPEC) was in charge of institutional evaluations until 2011. CPEC was closed as a result of state budget cuts (Finney et al., 2014, pp. 8-9).

Tennessee

In Tennessee, THEC is in charge of the system evaluation and publishes the Tennessee Higher Education Fact Book, which provides a wealth of data on the higher education system, including information on student participation and student success, as well as explanations about the funding formulae (Center for Higher Education Policy Studies, 2015, p. 127).

Louisiana

The same mechanism is employed in the state of Louisiana. Based on annual reports by the institutions and data submitted through a web-based reporting system, progress on the performance goals is evaluated annually by the Board of Regents (Center for Higher Education Policy Studies, 2015, p. 143).

South Carolina

In South Carolina, evaluation and monitoring has been recently conducted by an outside consultant commissioned by the Commission on Higher Education. Before 2006, it was the responsibility of CHE (Center for Higher Education Policy Studies, 2015, p. 148).

References:

Center for Higher Education Policy Studies (2015), Performance-based funding and performance agreements in fourteen higher education systems. Enschede. pp. 127 & 143-148. Available at:

<http://doc.utwente.nl/93619/7/jongbloed%20ea%20performance-based-funding-and-performance-agreements-in-fourteen-higher-education-systems.pdf> (Accessed: 18 October 2016).

Finney, J. E., C. Riso, K. Orosz, W.C. Boland, and University of Pennsylvania. (2014), From Master Plan to Mediocrity: Higher Education Performance and Policy in California, p. 8-9, Philadelphia (PA), University of Pennsylvania, Available at http://www.gse.upenn.edu/pdf/irhe/California_Report.pdf (Accessed: 08 December 2016).

Massachusetts Department of Higher Education (2016) "Board of Higher Education Approves Performance Funding Plan for State Universities", Available at: <http://www.mass.edu/about/newsreleases/nr-20150616.asp> (Accessed: 18 October 2016).

Q.1.5. Which **recent reforms** to institutions that are in charge of priority setting, budget allocations, and evaluations of HEIs and PRIs were particularly important?

No major reforms made.

Topic 2: Policy co-ordination mechanisms

Table 2. Questions on research and innovation councils

Question	Response
<p>Q.2.1. a) Is there a Research and Innovation Council, i.e. non-temporary public body that takes decisions concerning HEI and PRI policy, and that has explicit mandates by law or in its statutes to either?</p> <ul style="list-style-type: none"> – provide policy advice (i.e. produce reports); – and/or oversee policy evaluation; – and/or coordinate policy areas relevant to public research (e.g. across ministries and agencies); – and/or set policy priorities (i.e. strategy development, policy guidelines); – and/or joint policy planning (e.g. joint cross-ministry preparation of budgetary allocations)? <p>b) What is the name of the main research and/or innovation Council/Committee? Are there any other research Councils/Committees?</p> <p>c) Are there any other research Councils/Committees?</p>	<p>a and b) The President's Council of Advisors on Science & Technology (PCAST) is the main research and innovation council, though several other organisations exist with the similar functions. It provides scientific and technical advice to the President of the United States.</p> <p>PCAST was established in 1990. PCAST is an advisory group of the nation's leading scientists and engineers who directly advise the President and the Executive Office of the President. It is based at and supported by the Office of Science and Technology Policy (OSTP). PCAST makes policy recommendations in areas where understanding of science, technology, and innovation is key to strengthening the economy and forming policy (Schwaag Serger, S., Wise, E. and Arnold, E., 2015, p. 57).</p> <p>c) Given a very large and diffuse innovation system of the USA, there are several other players providing strategic policy advice. While PCAST is first and foremost an advisory body, the NSTC has the primary responsibility for the operational coordination of the government's science and technology policy. This includes the responsibility for setting clear national goals for federal science and technology investments and for preparing research and development strategies that are coordinated across federal implementing agencies to form investment packages aimed at accomplishing multiple national goals (Schwaag Serger, S., Wise, E. and Arnold, E., 2015, p. 58).</p> <p>The National Academies are another example of a body that advises or influences policy-making. The National Academies act under congressional charter (for the parent National Academy of Sciences) but are outside the government to preserve independence. Their advice can be narrow and targeted to an agency, or they can sponsor a study (or broader report) that speaks more to the nation at large and the Federal Government overall (Schwaag Serger, S., Wise, E. and Arnold, E., 2015, p. 58).</p>
<p><i>References:</i> Schwaag Serger, S., Wise, E. and Arnold, E. (2015), National Research and Innovation Councils as an Instrument of Innovation Governance. Verket för innovationssystem - VINNOVA. pp. 57-59, Available at: http://www.vinnova.se/en/Publications-and-events/Publications/Products/National-Research-and-Innovation-Councils-as-an-Instrument-of-Innovation-Governance/ (Accessed: 19 October 2016).</p>	
<p>Q.2.2. With reference to Q.2.1, does the Council's mandate explicitly include a) policy coordination; b) preparation of strategic priorities; c) decision-making on budgetary allocations; d) evaluation of policies' implementation (including their enforcement); e) and provision of policy advice?</p>	<p>a to e) The Council's mandate includes preparation of strategic priority setting and joint policy planning, as well as provision of policy advice concerned institutions may or may not implement. Its main mission is to provide scientific and technical advice to the President of the United States. It does not coordinate national policies or other agencies' work and it does not take decisions on programs and related budgets (Schwaag Serger, S., Wise, E. and Arnold, E., 2015).</p>

References:

Schwaag Serger, S., Wise, E. and Arnold, E. (2015), National Research and Innovation Councils as an Instrument of Innovation Governance. Verket för innovationssystem - VINNOVA. p. 57, Available at: <http://www.vinnova.se/en/Publications-and-events/Publications/Products/National-Research-and-Innovation-Councils-as-an-Instrument-of-Innovation-Governance/> (Accessed: 19 October 2016).

Q.2.3. With reference to Q.2.1, **who formally participates** in the Council? a) Head of State, b) ministers, c) government officials (civil servants and other representatives of ministries, agencies and implementing bodies), d) funding agency representatives, e) local and regional government representatives, f) HEI representatives, g) PRI representatives, h) private sector, i) civil society, and/or j) foreign experts

PCAST consists of high-profile members from academia and industry. Council members are appointed by the President – drawn from industry, education, research institutions, and other NGOs. Additionally, each meeting includes a public comment session (either submitted in advance in writing, or presented orally) (Schwaag Serger, S., Wise, E. and Arnold, E., 2015, p. 57).

References:

Schwaag Serger, S., Wise, E. and Arnold, E. (2015) National Research and Innovation Councils as an Instrument of Innovation Governance. Verket för innovationssystem – VINNOVA, p. 57, Available at: <http://www.vinnova.se/en/Publications-and-events/Publications/Products/National-Research-and-Innovation-Councils-as-an-Instrument-of-Innovation-Governance/> Accessed: 19 October 2016).

Q.2.4. With reference to Q.2.1.b., does the Council have its own a) **staff** and/or its own b) **budget**? If so, please indicate the number of staff and the amount of annual budget available.

a) The Council does have its own staff. In 2016, PCAST was supported by a staff of three who provide stewardship of the Council, organise its bimonthly meetings, work with its program of analyses that culminate in policy recommendations to the President and the Administration, and lead efforts to promote the implementation of PCAST recommendations. In practice, the PCAST also receives considerable support from OSTP staff (Schwaag Serger, S., Wise, E. and Arnold, E., 2015, p. 58).
b) Information on the Council's budget is missing.
c) Missing answer.

c) From 2005-16, were any **reforms** made to the mandate of the Council, its functions, the composition of the Council, the budget and/or the Council's secretariat? Was the Council created during the time period?

References:

Schwaag Serger, S., Wise, E. and Arnold, E. (2015) National Research and Innovation Councils as an Instrument of Innovation Governance. Verket för innovationssystem – VINNOVA, p. 58, Available at: <http://www.vinnova.se/en/Publications-and-events/Publications/Products/National-Research-and-Innovation-Councils-as-an-Instrument-of-Innovation-Governance/> (Accessed: 19 October 2016).

Table 3. Questions on national STI strategies

Question	Response
<p>Q.2.5. a) Is there a national non-sectoral STI strategy or plan?</p> <p>b) What is the name of the main national STI strategy or plan?</p>	<p>a and b) The strategic document "Driving towards Sustainable Growth and Quality Jobs" (2009) provided the strategic directions for government policies to further an innovation-based economy and to address important societal challenges until 2016. The Strategy was discontinued under the current U.S. government; Although this was an official administration document, it did not have the status of a national plan because it had not been ratified by the U.S. Congress (EC/OECD STI Policy Survey 2016, response A2). Information on new national STI strategies is not available.</p>
<p><i>References:</i> EC/OECD STI Policy Survey 2016 for the United States. Response A2</p>	
<p>Q.2.6. Does the national STI strategy or plan address any of the following priorities?</p> <p>a) Specific themes and/or societal challenges (e.g. Industry 4.0; "green innovation"; health; environment; demographic change and wellbeing; efficient energy; climate action) - Which of the following themes and/or societal challenges are addressed?</p> <ul style="list-style-type: none"> - Demographic change (i.e. ageing populations, etc.) - Digital economy (e.g. big data, digitalisation, industry 4.0) - Green economy (e.g. natural reReferences, energy, environment, climate change) - Health (e.g. Bioeconomy, life science) - Mobility (e.g. transport, smart integrated transport systems, e-mobility) - Smart cities (e.g. sustainable urban systems urban development) <p>b) Specific scientific disciplines and technologies (e.g. ICT; nanotechnologies; biotechnology) - Which of the following scientific research, technologies and economic fields are addressed?</p> <ul style="list-style-type: none"> - Agriculture and agricultural technologies - Energy and energy technologies (e.g. energy storage, environmental technologies) - Health and life sciences (e.g. biotechnology, medical technologies) - ICT (e.g. artificial intelligence, digital platforms, data privacy) - Nanotechnology and advanced manufacturing (e.g. robotics, autonomous systems) <p>c) Specific regions (e.g. smart specialisation strategies)</p> <p>d) Supranational or transnational objectives set by transnational institutions (for instance related to European Horizon 2020)</p> <p>e) Quantitative targets for monitoring and evaluation (e.g. setting as targets a certain level of R&D spending for public research etc.)</p> <p>f) From 2005-16, was any STI strategy introduced or were any changes made existing STI strategies?</p>	<p>a and b) The strategy "Driving towards Sustainable Growth and Quality Jobs" addressed the following specific societal challenges (no order of preference): Empowering a nation of innovators; creating quality jobs and lasting economic growth. It also addresses the following specific scientific research, technologies and economic fields (no order of preference): ICT (wireless broadband); energy (i.e. clean energy technologies); biotechnology; health and healthcare; nanotechnology; advanced manufacturing; space; educational technologies (A Strategy for American Innovation, 2015).</p> <p>c and d) It did not address specific regions or transnational objectives.</p> <p>e) The strategy "Driving towards Sustainable Growth and Quality Jobs" set quantitative target to raise R&D expenditures to 3.0% of GDP. However, this target is not attributed to a certain time horizon (A Strategy for American Innovation, 2015).</p> <p>f) Missing answer.</p>
<p>Q.2.7. What reforms to policy co-ordination regarding STI strategies and plans have had particular impact on public research policy?</p>	<p>No major reforms made.</p>

Table 4. Questions on inter-agency programming and role of agencies

Question	Response
<p>Q.2.8. Does inter-agency joint programming contribute to the co-ordination of HEI and PRI policy?</p> <p><i>(Inter-agency joint programming refers to formal arrangements that result in joint action by implementing agencies, such as e.g. sectoral funding programmes or other joint policy instrument initiatives between funding agencies.)</i></p>	<p>The Interagency Working Group (IWG) on the Science of Science Policy (SoSP) coordinates activities of U.S. government agencies and the broader academic community in the field of science policy (EC/OECD STI Policy Survey 2016, response A2). In 2008, the SoSP published a Roadmap outlining the Federal efforts necessary for the long-term development of an evidence-based science policy. In December 2008, this Roadmap was presented to the Science of Science Policy Community and feedback shaped a set of development of interagency research priorities between 2009 and 2012. These workshops have helped focus the SoSP's efforts in the development and use of best practices, emerging tools, methods, data, and data infrastructure to enable science policy decision-makers to base investment decisions on more rigorous and quantitative analyses (SoSP IWG, 2016).</p> <p>Among the primary functions of the SoSP are to (SoSP IWG, 2016):</p> <ul style="list-style-type: none"> – Develop tools, theories, and methodologies that will advance the science of science policy, and recommend joint research, data, and evaluation project that would enable Federal agencies to collaborate, coordinate, and leverage reReferences and efforts; – Develop the federal STAR METRICS data infrastructure to enable the SoSP community to upload data as a basis for rigorous analysis of the impacts of Federal S&T investments; – Develop a central, government-wide profile for Federal government researchers and for extramural principal investigators and researchers funded by science agencies. – Conduct workshops with principal investigators receiving grants from the NSF's Science of Science and Innovation Policy (SciSIP) programme and to promote and promulgate emerging best practices; – Assess progress in the development and application of science of science policy tools and techniques. <p>The following ministries and agencies are represented in SoSP: Department of Agriculture; Department of Commerce; Department of Defense; Department of Education; Department of Energy (Co-chair); Department of Health and Human Services; Department of Homeland Security; Department of the Interior; Department of State; Department of Transportation; Department of Veterans Affairs; Environmental Protection Agency; NASA, and the NSF (Co-chair). The following organisations in the Executive Office of the President are also represented on the Working Group: Office of Management and Budget, and the Office of Science and Technology Policy (SoSP IWG, 2016).</p>

References:

EC/OECD STI Policy Survey 2016 for the United States. Response B12_b.

SoSP IWG (2016), About the Interagency Working Group on Science of Science Policy (web page), Available at: <http://www.scienceofsciencepolicy.net/page/about-interagency-working-group-science-science-policy-sosp-iwg> (Accessed: 27 October 2016).

Q.2.9. a) Is co-ordination within the **mandate of agencies?**

a) Missing answer

b) From 2005-16, were any changes made to the mandates of agencies tasked with regards to inter-agency programming? Were new agencies created with the task to coordinate programming during the time period?

b) Interagency Working/Task Group (IWG) on Science of Science Policy was established in 2006. In 2005 U.S. Science Advisor John Marburger called for a heightened effort to develop a new "science of science policy" as a formal field of study. In 2006, in response the call for call for action, the Subcommittee on Social, Behavioral and Economic Sciences (SBE) established an Interagency Working/Task Group (IWG) on Science of Science Policy. In 2008, the Science of Science Policy (SoSP) IWG developed and published the Science of Science Policy: A Federal Research Roadmap, which outlined the Federal efforts necessary for the long-term development of a science of science policy, and presented this Roadmap to the SoSP Community (SOSP, 2016; SoSP IWG, 2016). For further information, please, see response to question 2.8.

References:

SoSP (2016), About SOSP (web page), Available at: <http://www.scienceofsciencepolicy.net/about> (Accessed: 27 October 2016).

SoSP IWG (2016), About the Interagency Working Group on Science of Science Policy (web page), Available at: <http://www.scienceofsciencepolicy.net/page/about-interagency-working-group-science-science-policy-sosp-iwg> (Accessed: 27 October 2016).

Q.2.10. What **reforms** of the institutional context have had impacts on public research policy?

No major reforms made.

Topic 3: Stakeholders consultation and institutional autonomy

Table 5. Questions on stakeholder consultation

Question	Response
<p>Q.3.1. a) Do the following stakeholders participate as formal members in Research and Innovation Councils? (i.e. Formal membership as provided by statutes of Council)</p> <ul style="list-style-type: none"> – Private Sector – Civil society (citizens/ NGOs/ foundations) – HEIs/PRIs and/or their associations 	<p>a) The council PCAST consists of high-profile members from academia and industry. Council members are appointed by the President – drawn from industry, education, research institutions, and other NGOs. Additionally, each meeting includes a public comment session (either submitted in advance in writing, or presented orally) (Schwaag Serger, S., Wise, E. and Arnold, E., 2015, p. 57).</p>
<p>b) Do stakeholders participate as formal members in council/governing boards of HEIs? (i.e. Formal membership as provided by statutes of Council)</p> <ul style="list-style-type: none"> – Private Sector – Civil society (citizens/ NGOs/ foundations) 	<p>b) <i>California</i> Regarding stakeholder engagement in university boards, the Board of Regents of the University of California (public HEI) includes the following stakeholders: Private sector – large firms (Newbridge Capital, LLC, California Strategies LLC, Manatt, Phelps & Phillips, Paramount Pictures' Motion Picture Group, US Hispanic Media, Inc.), civil society (Donate Life California Organ & Tissue Donor Registry).</p> <p><i>Massachusetts</i> Regarding stakeholder engagement in university boards, representatives from private sector, civil society, HEIs and PRIs participate as formal members of, for instance, the Board of Overseers of the Harvard University (Harvard University, 2016), as well as formal members of the Massachusetts Institute of Technology's board of trustees known as the Corporation (The MIT Corporation, 2016).</p>
<p><i>References:</i> Schwaag Serger, S., Wise, E. and Arnold, E. (2015) National Research and Innovation Councils as an Instrument of Innovation Governance. Verket för innovationssystem – VINNOVA, p. 57, Available at: http://www.vinnova.se/en/Publications-and-events/Publications/Products/National-Research-and-Innovation-Councils-as-an-Instrument-of-Innovation-Governance/ (Accessed: 29 October 2016). National Science Board (2016), Members (web page), Available at: https://www.nsf.gov/nsb/members/index.jsp (Accessed: 29 October 2016). Harvard University (2016), Board of Overseers (web page), Available at: http://www.harvard.edu/about-harvard/harvards-leadership/board-overseers (Accessed: 29 October 2016). The MIT Corporation (2016). Available at: http://web.mit.edu/corporation/ (Accessed: 29 October 2016).</p>	
<p>Q.3.2. a) Are there online consultation platforms in place to request inputs regarding HEI and PRI policy? b) Which aspects do these online platforms address (e.g. e.g. open data, open science)?</p>	<p>a to c) Missing answer.</p>
<p>c) From 2005-16, were any reforms made to widen inclusion of stakeholders and/or to improve consultations, including online platforms?</p>	
<p>Q.3.3. Which reforms to consultation processes have proven particularly important?</p>	<p>No major reforms made.</p>

Table 6. Questions on autonomy of universities and PRIs

Question	Response
<p>Q.3.4. Who decides about allocations of institutional block funding for teaching, research and innovation activities at a) HEIs and b) PRIs?</p> <p><i>(National/regional level: If HEIs face national constraints on using block funds, i.e. funds cannot be moved between categories such as teaching, research, infrastructure, operational costs, etc. This option also applies if the ministry pre-allocates budgets for universities to cost items, and HEIs are unable to distribute their funds between these.</i></p> <p><i>Institutions themselves: If HEIs are entirely free to use their block grants.)</i></p>	<p>a) The level of autonomy of HEIs varies within the higher education system and from State to State. Differences also exist between public institutions within a given state. In general, public HEIs enjoy a high degree of operational autonomy.</p> <p><i>California</i></p> <p>In California, for instance, the University of California enjoys constitutional autonomy as a separate branch of state government. The Constitution of California grants full autonomy to Public HEIs in organisational and institutional matters. A board of regents is politically elected but represents also civil society and academia to govern the university system (Constitution of California, 2016; California Master Plan for Higher Education, 1960).</p> <p><i>Massachusetts</i></p> <p>In Massachusetts, the University of Massachusetts is governed by a 22-member Board of Trustees that includes 17 members appointed by the Governor of Massachusetts. They participate in the oversight of the institution, in setting funding levels, establishing accountability measures, setting university policies and strategies, and approving new academic programs (University of Massachusetts, 2017).</p>
<p><i>References:</i></p> <p>Constitution of California (2016), Available at: http://www.leginfo.ca.gov/const-toc.html (Accessed 29 October 2016).</p> <p>California Master Plan for Higher Education (1960), Available at: http://www.ucop.edu/acadinit/mastplan/mp.htm (Accessed 29 October 2016).</p> <p>Eckel, P.D., and King, J.E. (2007), An Overview of Higher Education in the United States: Diversity, Access and the Role of Market Place, p. 3, Washington D.C.: American Council on Education.</p> <p>University of Massachusetts (2017), Board of Trustees, website, Available at: https://www.umassp.edu/bot (Accessed 16 March 2017).</p>	

Q.3.5. Who decides about **recruitment** of academic staff at a) HEIs and b) PRIs?

(National/regional level: If recruitment needs to be confirmed by an external national/regional authority; if the number of posts is regulated by an external authority; or if candidates require prior accreditation. This option also applies if there are national/regional laws or guidelines regarding the selection procedure or basic qualifications for senior academic staff.

Institutions themselves: If HEIs are free to hire academic staff. This option also applies to cases where laws or guidelines require the institutions to publish open positions or the composition of the selection committees which are not a constraint on the hiring decision itself.)

Who decides about **salaries** of academic staff at c) HEIs and d) PRIs?

(National/regional level: If salary bands are negotiated with other parties; if national civil servant or public sector status/law applies; or if external authority sets salary bands.

Institutions themselves: If HEIs are free to set salaries, except minimum wage.)

Who decides about **reassignments** and **promotions** of academic staff at e) HEIs and f) PRIs?

(National/regional level: If promotions are only possible in case of an open post at a higher level; if a promotion committee whose composition is regulated by law has to approve the promotion; if there are requirements on minimum years of service in academia; if automatic promotions apply after certain years in office, or if there are promotion quotas.

Institutions themselves: If HEIs can promote and reassign staff freely.)

a to f) Generally, HEIs and PRIs decide themselves about recruitment of academic staff, salaries of academic staff, as well as about reassignments and promotions of academic staff.

<p>Q.3.6. Who decides about the creation of academic departments (such as research centres in specific fields) and functional units (e.g. technology transfer offices) at a) HEIs and b) PRIs?</p> <p><i>(National/regional level: If there are national guidelines or laws on the competencies, names, or governing bodies of internal structures, such as departments or if prior accreditation is required for the opening, closure, restructuring of departments, faculties, technology offices, etc.</i></p> <p><i>Institutions themselves: If HEIs are free to determine internal structures, including the opening, closure, restructuring of departments, faculties, technology offices, etc.)</i></p>	<p>a to d) HEIs and PRIs decide themselves about internal academic structures, as well as about the creation of legal entities and industry partnerships.</p>
<p>Who decides about the creation of legal entities (e.g. spin-offs) and industry partnerships at c) HEIs and d) PRIs?</p> <p><i>(National/regional level: If there are restrictions on legal entities, including opening, closure, and restructuring thereof; if restrictions apply on profit and scope of activity of non-profit organisations, for-profit spin-offs, joint R&D, etc.</i></p> <p><i>Institutions themselves: If HEIs are free to create non-profit organisations, for-profit spin-offs, joint R&D, etc.)</i></p>	
<p>Q.3.7. Who earns what share of revenues stemming from IP (patents, trademarks, design rights, etc.) created from publicly funded research at a) HEIs and b) PRIs?</p> <ul style="list-style-type: none"> - HEI - Research unit / laboratory within HEI - Researchers 	<p>a and b) HEIs and PRIs set reward schemes themselves. Background information.</p> <p>The Bayh-Dole Act states that revenues must be shared between institutions, departments and individual researchers but the specific shares are left open for HEIs/PRIs and publicly funded organisations to decide.</p>
<p>c) From 2005-16, were any reforms introduced that affected the institutional autonomy of HEIs and PRIs?</p>	<p>c) No major reforms made.</p>
<p><i>References:</i></p> <p>Bayh-Dole Act or Patent and Trademark Law Amendments Act (1980), retrieved from https://www.gpo.gov/fdsys/pkg/STATUTE-94/pdf/STATUTE-94-Pg3015.pdf, (accessed 29.10.2016).</p>	
<p>Q.3.8. Which reforms to institutional autonomy have been important to enhance the impacts of public research?</p>	<p>No major reforms made.</p>