Senate Armed Services Committee
Advance Policy Questions for Dr. David Honey
Nominee to be Deputy Under Secretary of Defense for Research and Engineering

Duties and Qualifications

1. **What is your understanding of the duties and functions of the Deputy Under Secretary of Defense for Research and Engineering?**

The Deputy Under Secretary of Defense for Research and Engineering (DUSD(R&E)) is the primary assistant to and senior-most official under the Under Secretary of Defense for Research and Engineering. The Deputy Under Secretary will assist the Under Secretary to perform all duties enumerated in Section 133a of title 10. As a Presidentially appointed and Senate confirmed official, the Deputy Under Secretary is empowered to act on behalf of the Under Secretary on delegated topics, and when the Under Secretary is unavailable or recused.

The Deputy Under Secretary also leads efforts supporting the Under Secretary's role as the Chief Technology Officer of the Department. The Deputy Under Secretary works with the staff to engage industry, academia, the Services and other stakeholders to ensure that the Under Secretary is provided comprehensive and accurate information and advice.

2. **If confirmed, what additional duties and functions would you expect the Secretary of Defense and the Under Secretary of Defense for Research & Engineering (USD(R&E)) to prescribe for you?**

If confirmed as the Deputy Under Secretary, I expect to have an exceedingly collaborative relationship with the Under Secretary where both of us are working in our strengths, and where my role is to enable the Under Secretary to be most effective and impactful in driving the technology dominance of U.S. forces. I expect that on behalf of the Under Secretary, I will be deeply engaged with the staff on the day-to-day details of accomplishing Research and Engineering's mission, and will support the staff in overcoming challenges and obstacles. I expect that I will assist the Under Secretary in building collaborative relationships across the Office of the Secretary of Defense and in supporting Research and Engineering's engagements with its other partner organizations. I would also stand ready to support the needs of the Department and the Deputy Secretary to represent Research and Engineering equities on any Department-wide initiative, if so tasked. I look forward to having this dialogue with the Under Secretary and the Deputy Secretary of Defense, if confirmed.

3. **What background and experience do you possess that qualify you to perform these duties?**

Over the course of my career, I have served as an officer in United States Air Force, a member of the Senior Executive Service in the Department of Defense, a senior executive in a small business defense contractor, and as a senior executive in the Office of the Director of National Intelligence. I have managed research, technology and engineering programs on a broad range of technologies. I have served as a bench level scientist, a member of United States Air Force

Scientific Advisory Board, and supervisor of large national security research and development efforts, through which I developed a broad understanding of the science, technology, innovation ecosystems, platform integration, and testing that will be essential to this role. As a former B-52 and FB-111 pilot, I have a strong connection to and understanding of the needs and benefits of advanced technologies for our warfighers. During the 14 years over two tours that I have served at the Defense Advanced Research Projects Agency (DARPA), I have experienced creating and leading innovation as a program manager, deputy office director, office director, and special assistant to the Director. While I have often led projects involving large companies in the Defense Industrial Base, I am a strong proponent of our highly innovative small business sector and have actively participated in the SBIR program, first as a government program manager and later as a performer when I worked at a small defense contractor. In all of these previous assignments, I have actively participated in the efforts to push R&D across the Valley of Death and deliver a competitive edge to our warfighters. Having previously served as the Deputy Assistant Director of Research (DASD/R) in Research and Engineering while it was a part of the Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)), as the Acting Director of the Strategic Capabilities Office, and recently as a senior advisor in Research and Engineering, I gained a deep appreciation of what it takes to ensure that Research and Engineering will be a valued contributor, and I believe that my experiences have well-acquainted me with the demands of this position.

4. **Do you believe that there are actions you need to take to enhance your ability to perform the duties of the Deputy Under Secretary of Defense for Research and Engineering? Please explain your answer.**

If confirmed, I commit to relying on experts within the organization as I grow into the role of Deputy Under Secretary of Defense for Research and Engineering, and to be constantly learning. As the scope of the threats to our national security evolves, it will be an important responsibility for me to stay informed and to seek out a diverse set of viewpoints. The research and development landscape is also rapidly increasing its pace of change and to be successful, I must tap into a wide range of information sources both within and from outside of the Department. From a management perspective, my experience in the military, the Intelligence Community, and industry have taught me the importance of relationships, collaboration, and building consensus. Building and continuing the enabling relationships to be successful as the Deputy Under Secretary will begin on day one, and I am committed to undertaking that important work.

Relationships

5. **Please describe your understanding of the relationship of the Deputy Under Secretary of Defense for Research and Engineering with the following:**

    a. **The Military Service Science and Technology Executives**

The Military Service Science and Technology Executives oversee a multi-billion-dollar investment across the Services. It is my understanding that in order to ensure unity of effort and coordination across the Department of Defense's strategy, budget, and execution decisions, that the Under Secretary of Defense for Research and Engineering has established a Science &

Technology (S&T) Executive Committee (EXCOM), under the auspices of the Director of Defense Research and Engineering (Research and Technology) that helps the Department maximize S&T resources, avoid unnecessary duplication and identify strategic opportunities for S&T investment. It is also my understanding that the Under Secretary of Defense for Research and Engineering is assisted by the Deputy Under Secretary in evaluating the plans and programs of this activity.

b. The Directors of Department of Defense Laboratories and Research Centers

It is my understanding that the S&T EXCOM that has been established by the USD(R&E), in addition to maximizing the Department's S&T resources, oversees the Department's Laboratories and Research Centers through four Laboratory Quality Enhancement Panels (LQEPs). The Directors of the Defense Laboratories and Research Centers are active participants in all of the LQEPs. It is also my understanding that the Deputy Under Secretary would participate in regular briefings by the S&T EXCOM and the LQEPS in order to advise the Under Secretary on important issues.

c. The Director of the Defense Advanced Research Projects Agency (DARPA)

The Under Secretary of Defense for Research and Engineering (USD(R&E)) is assigned the responsibility to exercise authority, direction, and control over The Director of The Defense Advanced Research Projects Agency (DARPA). As the principal assistant to the USD(R&E), the Deputy Under Secretary of Defense for Research and Engineering supports the USD(R&E) in managing this core responsibility. If confirmed I look forward to supporting the USD(R&E)'s commitment to ensure that DAPRA continues to have the support it needs to conduct breakthrough research and accelerate DARPA's innovation into the Services.

d. The Administrator of the Defense Technical Information Center

The Under Secretary of Defense for Research and Engineering (USD(R&E)) is assigned the responsibility to exercise authority, direction, and control over The Director of The Defense Technical Information Center (DTIC). As the principal assistant to the USD(R&E), the Deputy Under Secretary of Defense for Research and Engineering supports the USD(R&E) in managing this core responsibility, and in helping other organizations within the Department better utilize this important resource.

e. The Director of the Defense Test Resource Management Center

The Under Secretary of Defense for Research and Engineering (USD(R&E)) is assigned the responsibility to exercise authority, direction, and control over The Director of the Test Resource Management Center (TRMC). As the principal assistant to the USD(R&E), the Deputy Under Secretary of Defense for Research and Engineering supports the USD(R&E) in managing this core responsibility. If confirmed, I look forward to supporting the USD(R&E) as she works to ensure that TRMC is able to accomplish its assigned roles and responsibilities.

f. The Director of Operational Test and Evaluation

If confirmed, I will support the Under Secretary of Defense for Research and Engineering in her efforts to work with the Director of Operational Test and Evaluation (DOT&E) to enhance the effectiveness, suitability, and survivability of DoD systems. I will seek to communicate frequently with DOT&E and staff on matters related to strategic test and evaluation policy, and other matters of overlapping concern where collaboration will help further the mission of the Department.

g. The Department of Defense Chief Information Officer

As the Principal assistant to the Under Secretary of Defense for Research and Engineering (USD(R&E)), the Deputy Under Secretary of Defense for Research and Engineering supports coordination and collaboration with the Chief Information Officer (CIO) and staff on information technology, information resource, and data management matters, in accordance with applicable DoD Information Technology policy and law. Other topics for USD(R&E) and CIO coordination and collaboration include Fully Networked Command, Control, and Communications; cyber security capabilities; artificial intelligence and machine learning; as well as information technology infrastructure and interoperability.

h. The Director of the White House Office of Science and Technology Policy

The Under Secretary of Defense for Research and Engineering (USD(R&E)) works in close collaboration with the White House Office of Science and Technology Policy (OSTP) to ensure the Department of Defense's science and technology efforts fit within the Administration's policy. As the principal assistant to the USD(R&E), the Deputy Under Secretary collaborates closely with OSTP to synchronize efforts and advance national science and technology priorities and to ensure that the Department's needs are addressed.

i. The Director of the Strategic Capabilities Office (SCO)

The Department of Defense Directive establishing the Strategic Capabilities Office (SCO) states that the Director of SCO will coordinate with the Office of the Secretary of Defense Principal Staff Assistants, whose responsibilities and authorities are affected by proposed actions of the SCO. Due to the shared missions of innovation, rapid prototyping, and capability delivery, I expect, if confirmed, to collaborate closely with the Director of the SCO to partner on shared projects, to further promote technology transfer, and to coordinate to remove barriers and ensure no duplication of efforts.

j. The Director of the Defense Innovation Unit (DIU)

The Under Secretary of Defense for Research and Engineering (USD(R&E)) is assigned the responsibility to exercise authority, direction, and control over the Director of the Defense Innovation Unit (DIU). As the principal assistant to the USD(R&E), the Deputy Under Secretary supports the USD(R&E) in managing this core responsibility. If confirmed, I look forward to supporting the USD(R&E) in fulfilling her commitment to ensuring that DIU continues to play

an important role in the Department's innovation ecosystem and bring forth new dual-use technologies and products to the Services.

k. The Director of the Missile Defense Agency

If confirmed as the Deputy Under Secretary of Defense, I expect to work closely with the Missile Defense Agency (MDA), which falls under the guidance and direction of the Under Secretary of Defense for Research and Engineering (USD(R&E)). While assisting the USD(R&E) in the management of the MDA, I expect to collaborate closely with the Director of MDA to ensure we maintain a robust multi-layered missile defense system capable of defending the homeland, our forward deployed forces, and our allies.

l. The Director of the Defense Microelectronics Activity

The Defense Microelectronics Activity (DMEA) plays an essential role to enable secure microelectronics for Department of Defense (DoD) systems. The Defense Microelectronics Activity (DMEA) was previously a component within the Office of the Under Secretary of Defense for Research and Engineering (USD(R&E)). In January 2021, DMEA was transitioned to the authority, direction, and control of the Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)). If confirmed, I will work with USD(A&S) and the Director of the DMEA to ensure the maintenance sustainment of our legacy systems and to facilitate integration of microelectronics quantifiable assurance standards developed under the Trusted and Assured Microelectronics program under the USD(R&E).

m. The Director of the Space Development Agency

The Space Development Agency currently falls under the purview of the Under Secretary of Defense for Research and Engineering and receives broad guidance and direction from that office. In preparation for the agency's transfer to the Space Force in FY23, Air Force Secretary Frank Kendall and Under Secretary of Defense for Research and Engineering Heidi Shyu are working together to facilitate the smooth transition of SDA and prepare the Space Force to support the agency's ability to execute its mission. Until that transfer in FY23, I will, if confirmed, work to ensure the Space Development Agency continues to develop and deliver advanced space-based capabilities in support of the joint warfighter.

n. The Program Administrator for Department of Defense Small Business Innovation Research

It is my understanding the Program Administrator for the Department of Defense Small Business Innovation Research (SBIR) reports to the Under Secretary of Defense for Research and Engineering through the Director of Defense Research and Engineering for Research and Technology. If confirmed, I am committed to ensuring that investments made through the SBIR and Small Business Technology Transfer programs provide innovative, technology solutions for our Warfighters.

Office of the Under Secretary of Defense for Research and Engineering

6. **What is your vision for the Office of the USD(R&E)?**

As the nominee for Deputy Under Secretary of Defense for Research and Engineering, I see my primary function as enabling and operationalizing the vision of the Under Secretary of Defense for Research and Engineering (USD(R&E)); which I understand includes working collaboratively with universities, commercial and defense industry, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), and other Department of Defense (DoD) organizations, across the Services and in partnership with our Allies to rapidly deliver innovative technical solutions to solve the toughest problems for national security, while also fostering diversity and inclusive practices. If confirmed, I foresee my role as assisting the USD(R&E) in setting the overarching DoD technology strategy, and addressing critical warfighting challenges and capability gaps.

7. **If confirmed, what recommendations, if any, would you make regarding changes to the organization, management, and resourcing of the Office of the USD(R&E) so as better to execute its duties and responsibilities?**

If confirmed I will, as a part of my ongoing duties, observe and evaluate the performance of Research and Engineering, and its abilities to fulfill its obligations and meet the needs of its customers and partner organizations. I will share my observations with the Under Secretary and make recommendations on how the organization could be better organized in this regard.

8. **Are there certain additional assets, including staffing and resources that you believe the Office of the USD(R&E) requires to optimize mission accomplishment?**

If confirmed, I will endeavor to better understand how well Research and Engineering is currently performing with regards to meeting its many commitments and obligations. I will share these observations with the Under Secretary and recommend ways by which any deficiencies can be addressed.

9. **What do you perceive to be the appropriate role of the Principal Directors, designated in accordance with Section 217 of the Fiscal Year 2021 National Defense Authorization Act, for each technology area deemed by the USD(R&E) to be critical for support of the National Defense Strategy?**

Section 217 of the National Defense Authorization Act for Fiscal Year 2021 requires the Under Secretary of Defense for Research and Engineering (USD(R&E)) to identify technologies it considers critical to support the National Defense Strategy (NDS), and designate Senior Officials to coordinate research & engineering (R&E) activities for each of those areas. The Principal Directors (PDs) have been identified as Senior Officials for the current 11 technology areas and, as such, are responsible for the Senior Official duties outlined in Section 217 to: 1) develop and update research & technology development roadmaps, funding strategies, and technology transition strategies; 2) conduct annual assessments of workforce, infrastructure, and industrial base capabilities/capacity; 3) review the relevant R&E budgets across the Department; and 4) coordinate R&E activities of the Department with international partners, the interagency, and the

private sector, and task appropriate intelligence agencies of the Department to compare U.S. capabilities to those of our adversaries. USD(R&E) looks to PDs to coordinate activities across the department to ensure cohesion and unity of effort towards enabling the NDS.

Major Challenges and Priorities

10. In your view, what are the major challenges that will confront the next Deputy Under Secretary of Defense for Research and Engineering? If confirmed, what plans do you have for addressing these challenges?

If confirmed, the major challenges I anticipate are the ones that Secretary Austin has articulated, to include developing the capabilities needed to deter and maintain our competitive advantage against China and other persistent threats, defeat COVID-19, address the climate crisis, and grow the Department's talent so the Department can meet the security challenges of today and tomorrow. Technology and innovation will play a key role in addressing these challenges, and if confirmed, I will work to ensure the Department leverages our partnerships across the commercial and defense sectors, universities, Federally Funded Research and Development Centers (FFRDC) and University Affiliated Research Centers (UARC), as well as our Allies and partners, to rapidly deliver cutting-edge and trusted technical capabilities to our warfighters to protect and defend the nation.

National Defense Strategy (NDS) and Interim National Security Strategic Guidance

The 2018 NDS outlines the threats confronting the United States: a rising China, an aggressive Russia, and the continued threat from rogue regimes and global terrorism. In March 2021, the Biden Administration issued its Interim National Security Strategic Guidance, which sets out the national security priorities for the Administration. Among these priorities is the requirement to "promote a favorable distribution of power to deter and prevent adversaries from directly threatening the United States and our allies, inhibiting access to the global commons, or dominating key regions". The Administration has initiated the process of preparing a new National Defense Strategy, planned for issuance 2022.

11. Do you believe that the 2018 NDS and the Interim National Security Strategic Guidance accurately assess the current strategic environment, including the most critical and enduring threats to the national security of the United States and its allies?

It is my understanding that the Department of Defense has initiated a National Defense Strategy review to ensure the Department of Defense's strategic priorities are properly aligned to the President's interim National Security Strategic Guidance and assess the threats across the security environment. If confirmed, I will work with the Secretary, Deputy Secretary, and Under Secretary to ensure the Office of the Under Secretary of Defense for Research and Engineering is postured to support the Department's defense priorities.

12. In your view, what role should the Office of the USD(R&E) play in ensuring the Department of Defense can meet the requirements of the NDS?

I believe the role of the Office of Under Secretary of Defense for Research and Engineering (OUSD(R&E)) is to prioritize and advance the Department's technological and modernization investments which underpin the capabilities of our warfighters and enables them to meet National Defense requirements. If confirmed, I will work with USD(R&E) and other senior leaders to ensure the Department is making the right investments, spurring and leveraging innovation from the commercial and defense sectors, and strategically maturing technologies to more rapidly transition them into fielded capabilities to meet National Defense Strategy requirements.

13. In your view, how can research and engineering priorities best be incorporated in the new NDS for 2022?

It is my understanding that the Department has initiated a National Defense Strategy 2022 development process. If confirmed, I will work with the Under Secretary of Defense for Research and Engineering to understand how best to ensure research and engineering priorities are incorporated in the National Defense Strategy in such a way that executes our strategy and maintain the nation's technological edge.

14. In your view, what advantages in the domain of research and engineering must the United States develop and enhance to enable it to prevail in the strategic competition with Russia and with China? If confirmed, what approaches would you implement to develop and sustain such advantages?

I believe our ability to innovate provides the US an advantage in any strategic competition with Russia or China. However, our ability to transition those innovations into operational capabilities faster than Russia or China remains a persistent challenge. If confirmed, I will look at the systemic root cause of any barriers to transition and will seek to work with our partners to overcome them. One area of particular concern is the potential displacement of the United States as a leader in the establishment of global technical standards by China. Such actions puts our position as innovation leader at risk and also greatly limits the technologies and infrastructures that the Department needs to rely on in the future. If confirmed, I will work with other Department stakeholders and our systems engineering and defense standards office to work more closely with our allies and the National Institute of Standards and Technology to address this problem.

The 2018 NDS also provides that "effectively expanding the competitive space requires combined actions with the U.S. interagency to employ all dimensions of national power. We will assist the efforts of the Departments of State, Treasury, Justice, Energy, Homeland Security, Commerce, USAID, as well as the Intelligence Community, law enforcement, and others to identify and build partnerships to address areas of economic, technological, and informational vulnerabilities."

15. If confirmed, what recommendations, if any, would you have to better employ all dimensions of national power, including in the domain of research and engineering, to expand the competitive space?

Few technologies or engineering practices are uniquely military anymore. The Under Secretary of Defense for Research and Engineering (USD(R&E)) should maintain early and continuous engagement with all U.S. agencies, industry, academia, non-profits, and our international partners to synergize our activities not only to streamline our programs for efficiencies, but also to leverage the talent and expertise that others have and bring those to bear on the toughest challenges facing the Nation. While the Department has historically had a close research and engineering relationship with others in the national security community, I believe the USD(R&E) should broaden its engagements with the non-traditional organizations.

Support for the Chief Technology Officer

If confirmed, you would be the Deputy to the Chief Technology Officer (CTO) of the Department of Defense.

16. What do you see as the role of the CTO of the Department of Defense?

The Chief Technology Officer's (CTO) role is to advise the Secretary of Defense on all matters related to research, engineering, manufacturing, developmental test and evaluation, technology development, innovation, and technology protection activities occurring within the Department of Defense, as well as internationally. The CTO also serves as a resource upon which other Department offices can rely upon for support. Further, the CTO establishes priorities across those matters to ensure conformance with Departmental policy and guidance.

17. What experience do you have that will enhance your ability to serve as the Deputy CTO of the Department?

I have had professional roles that include being a United States Air Force pilot, bench level scientist, and headquarters staff officer; working at a Federally Funded Research and Development Center (FFRDC); managing science and technology organizations; serving as the Deputy Assistant Secretary of Defense for Research under the Assistant Secretary of Defense for Research and Engineering; serving in the intelligence community; and working at the Defense Advanced Research Projects Agency (DARPA). I have also worked in small businesses and understand the scope of how research progresses into a military capability. I have experience working interagency research and development strategic planning efforts, have co-led a private-public partnership, and have participated in a number of planning and coordination activities led by the Office of Science and Technology Policy (OSTP). My previous assignment as the Director of Science and Technology in the Office of the Director of National Intelligence and my current position as a special assistant to the Director of DARPA have each contained many of the roles and responsibilities of a CTO. I know from my previous positions that the government, defense industry, and military-user interfaces all must collaborate to enable that capability delivery. I believe that my experience will allow me to advise the Chief Technology Officer

(CTO) on these areas and to be a particularly strong Deputy where the CTO is unavailable or recused.

18. Given the growing role of information technology and software in military capabilities, what do you understand to be the differences in roles, responsibilities, and authorities between the Office of the Chief Information Officer and the CTO?

The Chief Technology Officer is the principal advisor to the Secretary of Defense on all matters relating to science, technology, research, and engineering. Whereas the Chief Information Officer is the senior advisor to the Secretary of Defense on matters relating to the information enterprise, to include cybersecurity, communications, information systems, and more.

19. What technologies do you consider the highest priorities for development in the DOD, based upon the ability of each to contribute to DOD mission accomplishment in the short- and longer-terms?

Of the 11 modernization priority areas identified by the Under Secretary of Defense for Rsearch and Engineering, artificial intelligence, autonomy, cyber, directed energy, Fully Networked C3, hypersonics, microelectronics, space and 5G stand to transform our capabilities in the short-term. The remaining priority areas of biotechnology and quantum science hold great promise for the longer-term. Beyond the 11 priority areas, significant contribution in the short-term from software and high performance processing and virtual augmented reality will be beneficial, while advancements in low cost materials and cognitive warfare would significantly contribute to Department of Defense mission accomplishment. Each of the 11 modernization areas encompasses a number of important enabling technologies which must also be properly supported. If confirmed, I will help the Under Secretary of Defense for Research and Engineering scan the horizon for new technology areas so that the department can be prepared for the future.

Investment in Science and Technology (S&T)

20. What metrics will you use to assess the appropriateness of the size and portfolio of DOD and Military Department S&T investments?

If confirmed, in order to ensure there is an appropriate level of long term Science and Technology (S&T) investment, I will assist the Under Secretary of Defense for Research and Engineering in evaluating the strength of Service S&T investments in light of the current Service focus on prototyping and modernization. It is also important to understand the current gaps which exist in our operational capabilities, and to collaborate with other stakeholders to establish the best possible S&T investment strategy.

21. What role should the Deputy Under Secretary of Defense for Research and Engineering play in the development and coordination of Military Department and Defense Agency S&T investment strategies, programs, and budgets?

The Deputy Under Secretary of Defense for Research and Engineering should review the status of the current investments and their efficacy towards achieving technology-based capability overmatch in the respective Joint Warfighting Domains. If there is not a clear path to overmatch, there should be analysis performed to identify science and technology investments to advance game changing technologies and approaches, and adjustments to investments should be made.

22. In your judgment, will the level of funding appropriated and allocated to S&T affect the Department's ability to meet the threats of the future? Please explain your answer.

Analysis of science and technology investments should be an ongoing activity, in order to determine if they are funded at an appropriate level to meet the threats of the future. As the priorities of the Department of Defense shift and new security challenges emerge, it is critically important to ensure the right S&T investments are being made. If confirmed, I look forward to discussing this matter with the Under Secretary of Defense for Research and Engineering.

23. Do you believe that the Department's current S&T investment strategy strikes the appropriate balance between funding innovative, disruptive technologies and addressing near-term operational needs and military requirements? Please explain your answer.

If confirmed, I will seek to review current science and technology investment strategy to see if it strikes an appropriate balance between funding innovative, disruptive technologies and addressing near-term operational needs and military requirements.

Basic Research

24. Given the continuing nature of basic research and the broad implications and applications of discovery-focused and innovation-focused sciences, what criteria would you use, if confirmed, to measure the success of these programs and investments?

Having clear and established methods to measure and assess these programs and investments is important. However, traditional metrics involving schedules and planned milestones, while necessary to gauge programmatic progress, do not adequately reflect the high-risk and exploratory nature of basic research. Regular reviews of such programs coupled with independent peer review by an independent group can often provide the needed insights. If confirmed, I will assess existing and new metrics and measures for basic research success, and investigate where those metrics and measures could help the Department of Defense better forecast success of the program.

25. What concerns do you have, if any, about current levels of funding for Department of Defense basic research? If confirmed, how would you plan to address those concerns?

If confirmed, I will seek to review current basic research activities and funding levels with the Under Secretary of Defense for Research and Engineering and other department leaders to ensure basic research activities are positioned to enable the Department of Defense to meet emerging security challenges.

26. If confirmed, what steps, if any, would you take to increase efforts in unfettered exploration, which has historically been a critical enabler of the most important breakthroughs in military capabilities?

The Department of Defense plays an essential role in supporting unfettered scientific exploration. The Department has a number of fellowship, sponsorship, and scholarship programs to facilitate far-reaching, exploratory research with transformative potential. If confirmed, I will support and seek to strengthen these programs to ensure the robustness of the Department's science and technology ecosystem.

27. In your view, how should the Department balance the inherent openness and academic freedom that are integral to university-based fundamental research with the need to protect our national security interests and maintain technological advantages over our potential adversaries?

The Department of Defense conducts research across a wide range of readiness levels, from very basic research to highly controlled classified work. The Department uses fundamental research, principally conducted at colleges and universities, to provide early-stage idea generation that will help spark breakthrough technologies that will give the United States an advantage many years into the future. This type of research requires an open and collaborative mindset, so that groups of talented scientists can come up with something no one has thought of before. Once that work has identified a clear path forward on an application, then the Department can transition the work to a more secure environment to protect it.

Microelectronics

28. Do you believe that the Department of Defense should support efforts to establish commercially viable microelectronics production capabilities in the United States? Please explain your answer.

Yes. If confirmed I will work with and support the Under Secretary of Defense for Research and Engineering, Executive Office of the President, the interagency, and Congress in a whole of government approach to establish and maintain a commercially viable microelectronics production capability in the United States. It is critical that the Department of Defense support and leverage the efforts of the interagency to establish partnerships with commercial industry to enable Department-assured access to state-of-the-art microelectronics technologies.

29. Do you believe that the Department of Defense should seek to establish a "trusted foundry" to support DOD microelectronics requirements? Please explain your answer.

I am not fully briefed on the current status of all of the Department of Defense's microelectronics developments efforts. While the "trusted foundry" model might potentially support some of the Department's unique and legacy technology needs, it is very clear that new approaches are needed to address Defense demands for state-of-the-art microelectronics. If confirmed, I look forward to supporting the Under Secretary's microelectronics strategy, and to working with the Congress on these issues and delivering secure, reliable semiconductor technologies for Defense systems.

30. What is your opinion regarding whether the Department of Defense should invest in the establishment of a robust national network for microelectronics research to support the development of next generation dual use microelectronics technologies and domestic production capabilities? Please explain your answer.

I fully support the establishment of a robust national network for microelectronics research and development, leveraging the expertise of academia and industry in an intentional and strategic partnership, in order to facilitate moving microelectronics technologies from laboratories to fabrication. If confirmed, I will support Department of Defense investment in and oversight of establishing a national network for microelectronics research.

5G

31. In your view, what role should the Department of Defense play in the development and deployment of advanced 5G infrastructure and capabilities?

The Department of Defense (DoD) should be instrumental in advancing U.S. and partner abilities to produce the most advanced and highest quality 5G and NextG products in the world, to ensure that the DoD can securely operate in a global 5G environment and take full advantage of the improvements offered.

32. In your view, what role should the Office of the USD(R&E) play in these efforts?

The Office of the Under Secretary of Defense for Research and Engineering should facilitate the development of dual-use capabilities, the experimentation and evaluation of performance gains, the assessment of risks and identification of core security principles, and the advocacy of international standards that support Department of Defense and U.S. interests.

33. The Department's 5G initiative, led by the Office of the USD(R&E), promises to help ensure that the U.S. military and commercial sectors take a lead in 5G wireless infrastructure and applications. If confirmed, how would you intend to continue to prioritize the USD(R&E)-led 5G initiative going forward?

The 5G initiative should continue to be a priority. The 5G initiative should expand its tech horizon to include future developments such as 6G and NextG to include Department of Defense use cases. Also, the 5G initiative should lead the way in transitioning the applications and enhancements being developed to the Services and programs of record.

Coordination of Defense S&T Internally and with Other Agencies

34. If confirmed, how would you integrate the S&T programs of the Military Departments and Defense Agencies to reduce redundancy, leverage investments, and promote cooperation in order to achieve greater efficiency and technological advancement?

The Department of Defense (DoD) has established an overarching framework in Reliance 21 for the joint planning and coordination of the Department's science and technology (S&T) programs. The goal of Reliance 21 is to ensure and promote the DoD S&T community to provide solutions and advice to the Department's senior-level decision makers, warfighters, Congress, and other stakeholders in the most effective and efficient manner possible. This is achieved through an ecosystem and infrastructure that enables information sharing, alignment of effort, coordination of priorities, reduced redundancies and support for scientists and engineers across the Department. If confirmed, I will endeavor to continue to advocate for collaboration and coordination across the Military Departments and Defense Agencies and maximize the effectiveness of the existing Reliance 21 framework.

35. Do you believe the mechanisms of coordination between other federal departments and agencies and the Department of Defense are adequate to ensure that the military can best leverage the advances of others in the following domains:

- **National Science Foundation on defense needs for basic science, especially in social sciences**
- **National Institute for Standards and Technology for quantum computing and cybersecurity**
- **National Aeronautics and Space Administration on hypersonics and other space research and the viability and availability of testing facilities**
- **National Institutes of Health on areas in which military medical research and vaccine development overlap with civilian medical needs**
- **Intelligence Community in setting defense research priorities to prepare for future threat environments**
- **Department of Homeland Security on homeland defense and national security-related science**
- **The Department of Energy and the National Nuclear Security Administration**

The Department has significant ability to coordinate and collaborate with other government agencies through the White House's Office and Science and Technology Policy's National Science and Technology Council, National Coordination Offices, and other direct arrangements (Memorandum of Understanding (MOU)) between specific agencies. A few examples of these include the National Quantum Coordination Office and the MOU with the Department of Energy and the National Nuclear Security Administration. If confirmed, I will assess where the Reliance 21 framework can better leverage other Departments and Agencies and make recommendations to modify the framework as necessary.

36. If confirmed, what specific steps would you take to engage with these other federal agencies and the White House Office of Science and Technology Policy to improve coordination?

I would reaffirm the Department's commitment to collaboration and coordination with other federal agencies and the White House Office of Science and Technology Policy through direct engagement with the White House Office of Science and Technology Policy and through a thorough review and update of our existing MOUs to ensure that the Department is deriving the maximum benefit from existing collaboration efforts.

Technology Strategy

37. What do you believe to be the key attributes of a sound technology strategic plan that could be used effectively to justify DOD programming and budgeting?

Technology strategic plans should not only identify technology goals and objectives, they also need to integrate the policy, workforce, infrastructure, and prototyping and experimentation required to enable their development and successfully socialize the transition into service. Off ramps for tech transition and expected levels of technology readiness and the relationship to manufacturing readiness should also be included. All stakeholders and partners should participate in the creation, evaluation and updates of these plans.

38. If confirmed, what specific steps would you take to ensure that such strategic plans are used during the DOD planning, programming, and budgeting process?

If confirmed, I will ensure that technology strategic plans fully inform the budget, planning, and programming process. I believe that the strategic plans should be guiding the activities of the Services and Agencies at every level. Ensuring these plans are adopted at the grass-roots level by researchers, engineers, and program managers and emphasizing these plans as a programming priority in defense-wide planning guidance will help ensure the strategy's objectives are moving forward and enable us to achieve the technology modernization we need.

39. How should a Department of Defense-wide technology strategy inform the activities of the Military Departments and Defense Agencies, in your view?

The Department-wide technology strategy should inform the activities of the Services and Agencies at multiple levels, beginning fundamentally with the researchers, engineers and program managers responsible for developing the technology. This technology needs to be incorporated into current and future program architectures, in alignment with the full weight and direction of the defense-wide planning guidance; which will help garner support from respective Service and Agency programmers. Having these technology plans incorporated at the grass-roots level by researchers, engineers and program managers will smooth the transition from legacy systems to the modernized systems we need in the future.

Technology Transition

40. What is your evaluation of the effectiveness of current technology transition processes and systems?

Technology transition is a very demanding activity and my sense is that the Department of Defense is successfully transitioning many important technologies into programs of record, and many programs emphasize transition rate as a key metric. In my experience, the highest likelihood of successful technology transition occurs when such planning occurs early in the research and development lifecycle. All of the stakeholders, such as the acquisition offices, the users and the test community must be engaged throughout. The research and development community must be proactive in communicating its plans, progress and remaining risks to be mitigated. While transition is very important, I believe the Department also requires programs that explore higher-risk technologies as a hedge against future needs. If confirmed, I will continue to place emphasis on appropriate transition rates that emphasize getting technologies across the "Valley of Death," without creating a risk-averse culture that marginalizes disruptive innovation

41. What do you perceive to be the most significant in technology transition within the Department of Defense?

Close coordination between technology developers, Service programs of record, the test community, and warfighters is critical from the start. As one example, the Advanced Capabilities directorate within the Office of the Under Secretary of Defense for Research and Engineering, which oversees prototyping and experimentation activities, transitions approximately 80% of its prototypes to the military services or the warfighter. This success is based on working intimately with the Services' acquisition Program Managers (PMs) before a prototype is initiated, to ensure the Office of the Secretary of Defense (OSD) understands whether the PM is truly invested in the results of the prototyping activity. If confirmed, I will continue to emphasize this approach with my acquisition counterparts at OSD and the Services.

42. What would you do, if confirmed, to address these challenges?

If confirmed, I will support the current portfolio of mutually supportive research, development, test, and evaluation (RDT&E) programs, while looking for ways to make them even more impactful. This would include efforts like an emphasis on continued outreach across the U.S. innovation ecosystem, maintaining a decentralized but federated mix of RDT&E programs that maximizes innovation by reducing bureaucracy, and promoting a clear understanding of the Services' interests in new technologies so we have a clear-eyed understanding of transition risks. Facilitating meaningful communications between the various stakeholders so that all are kept informed of new technical developments, changes in the threat, or emerging requirements is a key responsibility for the research community in meeting expectations and obligations. I believe that thoughtfully balancing these sorts of priorities will enable us to deliver the capabilities needed for us to maintain our technological edge.

43. Do you believe that we need to change the manner in which we fund technology transition in the Department? If so, what changes would you recommend?

I am aware of the Deputy Secretary of Defense's recently announced initiatives to reform the innovation communities of the Department of Defense, and to focus specifically on rapid experimentation, in order to demonstrate technologies in operationally relevant environments, enabling technologies to transition to the acquisition process and get into the field more quickly. This is an important initiative which I would fully support, if confirmed. Successful transition is also highly dependent on the technology recipient's readiness, funding profile, and adequate preparation within the appropriate program of record. Ensuring program outreach and adoption of transition plans early on are keys to success. If confirmed, I will review these processes with the Under Secretary of Defense for Research and Engineering and ensure the Department is making full use of existing authorities to address the valley of death.

Using Commercial Technology for National Security Missions

44. If confirmed, what changes would you pursue to current research and engineering, experimentation, and prototyping processes to make better use of commercial technologies?

The Department of Defense must access all sources of innovation, particularly from non-typical defense suppliers, small businesses, and purely commercial entities in order to remain competitive. I would work with Research and Engineering's Advanced Capabilities Directorate, the Small Business Innovation Research program, the Defense Innovation Unit, and other prototyping stakeholders to ensure we are maximizing their outreach initiatives to access commercial technology and transition it to the users. If confirmed, I will review all these programs and authorities, and make recommendations to the Under Secretary.

45. If confirmed, how would you effectively transition the outputs of such processes to major defense acquisition programs or capabilities that are fielded at scale within the Military Departments?

Developing technologies that provide joint solutions and applying a mission focus at the entry point helps ensure that the Department's technology investments have the highest chance of transitioning. Close coordination with the Office of the Under Secretary of Defense for Acquisition and Sustainment, as well as with the Service Acquisition Executives, and with the Joint Staff is critical to ensure that the outputs of these efforts can get fielded at scale. Additionally, when the Services or combatant commands have a stake in agreed-upon transition plans, and have jointly co-funded development, this helps guide the technology into fielding at scale.

46. Many of the Military Departments have created their own organizations to make use of commercially available technologies. If confirmed, how would you ensure these organizations coordinate with the Office of the USD(R&E), and with each other, such that unnecessary overlaps in investment are avoided?

If confirmed, I will review the coordination mechanisms between the Department of Defense's commercial technology outreach organizations to optimize efforts and prevent duplication.

47. If confirmed, what processes would you encourage to allow commercial companies to become prime contractors and systems integrators for defense programs?

Having greater participation as a prime contractor by new entrants from the commercial world could significantly increase marketplace competition and benefit the Department. If confirmed, I will review our prototyping strategy and practices to ensure that there is no undue bias toward traditional prime contractors or system integrators, and that qualified commercial companies (both large and small) are considered for these functions. Improving participation by commercial companies in prototyping will give them valuable insight into the Department's needs, and will also allow the Department's workforce to become more familiar with new concepts.

Manufacturing

48. How should the Department of Defense use investments in advanced manufacturing capabilities to support achieving the goals of the NDS?

Translating innovation into fielded capability is critically dependent upon the ability of the Department of Defense and the industrial base to make system designs producible and manufacture those systems at scale and speed of warfighter relevance. Advanced manufacturing enables the ability to apply new designs and materials to warfighting challenges while reducing the cost and time to produce current and emerging designs. If confirmed, I will ensure our advanced manufacturing investments continue to address the most critical industrial base and supply chain needs of the department.

Systems Engineering and Prototyping

49. In your view, does the Department of Defense have sufficient systems engineering expertise in its current military and civilian workforce? In its contractor base?

Ensuring that the Department of Defense and its contractor base have sufficient engineering expertise is critically important throughout all parts of a weapons system's lifecycle. Developing engineers with sufficient systems engineering expertise takes continuous learning and training as well as experience and mentorship. If confirmed, I will work with Research and Engineering's partners to understand the scope of any current or future gaps and will support the development of the necessary systems engineering expertise to meet future mission needs.

50. What changes, if any, do you believe should be made in the Department's systems engineering organization and practices?

The Department of Defense's system engineering organization and practices need to be continuously evaluated and then strengthened where needed. New opportunities may exist in the areas of digital engineering and model-based systems engineering. Ensuring the continual modernization of system engineering processes will facilitate rapid and iterative "design-test-fix" cycles and improve flexibility. If confirmed, I will identify opportunities to strengthen and resource the Department's systems engineering organization and practices.

51. What are your views on the vesting of technical data rights? What rights should the Department retain from the prototyping phase into development?

The Department of Defense (DoD) needs to acquire appropriate technical data rights to enable the conduct of business that will ensure systems will remain functional, sustainable, upgradable, and affordable. Program managers need to consider and acquire the appropriate technical data rights necessary to support the operation, maintenance, modernization, and sustainment of programs. The Department needs to consider and use all available techniques and best practices, including modular open systems approaches when cost effective and feasible. Acquiring technical data rights early in the acquisition process helps protect core DoD interests over the entire life cycle.

Venture Capital Strategies

52. What role do you believe that venture capital firms should play in the Department's investments in developing technologies, including in the Small Business Innovation Research program?

Venture capital firms can be powerful allies for the Department by sharing development costs, accelerating time to market, and in identifying dual use opportunities. The Department can enhance venture capital participation by signaling areas of interest that may spur strategic and timely investment through its National Security Innovation Capital program. Venture Capital can be an essential partner in the Small Business Innovation Research program by helping small companies find new sources of investment, accelerate product development, and efficiently bring dual use capabilities to the marketplace.

53. What advantages and disadvantages do you see in the use of venture capital strategies?

Advantages are that venture capital strategies provide start-ups with access to critical resources, industry and customer connections through extensive business networks, and guidance as the companies grow. Venture capital can help the Department of Defense accelerate product development and efficiently deliver breakthrough, war-winning capabilities while reducing technical, financial and schedule risk.

Disadvantages include the potential for companies to lose autonomy, since investors may want to participate in company decisions. Also, without strong demand signals from the government, venture capital may not accept investment risk and this could force shifting of development priorities to more profitable projects or shorter-term pay-offs.

International Research Cooperation

54. In your view, how should increased globalization of defense technology affect the Department of Defense's research and technology development and investment strategy?

The Department of Defense's (DoD) research and technology development and investment strategy should consider the increasingly global and interdependent research, development, and manufacturing of defense technology, including the global competition for talent. Identifying critical DoD programs and technologies will focus our investment, protection, and exploitation activities on the technologies critical to military capability. DoD must also work to apply the appropriate protection based on the maturity of the technology and establish procedures to reinforce the integrity of our research enterprise. DoD can share improved threat awareness, inform necessary controls, and collaboratively develop best practices with the broader national science and technology community and with select allies and partners, while supporting the free exchange of ideas critical for technological advancement. If confirmed, I will support the Under Secretary in addressing the increased globalization of defense technology and ensure the Department's investment strategies strike the proper balance between promoting and protecting critical technologies.

55. In your view, what are the obstacles to more effective international cooperation, and, if confirmed, how would you address those obstacles?

I am unaware of any substantive issues facing the Under Secretary of Defense for Research and Engineering's (USD(R&E)) ability to pursue international science and technology collaboration. I understand that USD(R&E)'s "DoD International S&T Engagement Strategy" establishes a framework for guiding its international cooperation activities. If confirmed, I will review this Strategy, examine any barriers that may impede its implementation, and work to continue the USD(R&E)'s efforts to expand international science and technology collaboration with Allies and partners.

56. How would increased international technology cooperation affect our domestic defense industrial base, in your view?

The Department of Defense's (DoD) international partners invest their own research and development funds to achieve their defense and security objectives and increase their military capabilities. By increasing technology cooperation with these partners, DoD can pool its investments and leverage expertise and ideas that both benefit and enhance U.S. military capabilities and the U.S. domestic defense industrial base. Participation in international armaments cooperation programs also provides our partner with greater insight and appreciation of U.S. industry. If confirmed, I will support the continued close collaboration between the Under Secretary of Defense for Research and Engineering and the Under Secretary of Defense for Acquisition and Sustainment on these and other international efforts.

Test & Evaluation

57. What role should the Office of the USD(R&E) have in ensuring the acquisition programs undertake sufficient developmental test & evaluation?

I believe the research and engineering enterprise needs to continue to execute sufficient and appropriate developmental testing to ensure warfighters are equipped with affordable, effective, suitable, and survivable systems. Such testing must be commensurate with the urgency of

deploying a capability. I believe testing should be thought of as a continuum – breaking down the stovepipes that have traditionally constituted Contractor Testing, Developmental Testing, and Operational Testing. Research and Engineering must communicate to the other stakeholders the value of early mission-based developmental testing and evaluation, which will be a critical enabler to reduce "Operational Testing discovery" and provide more confidence for successful Operational Testing completion. If confirmed, I look forward to working with the committee to assure acquisition programs undertake sufficient and appropriate developmental test & evaluation activities.

58. What is your assessment of the developmental test & evaluation capabilities of the Department of Defense?

I am not fully briefed on the Department of Defense's test and evaluation capabilities. However, as we face new and evolving threats it is incumbent upon the Department to ensure our acquisition programs are able to address them. I have been involved in test activities relevant to the research & engineering enterprise throughout my career, and I fully understand that early developmental testing of a system in a mission-based environment is critical in informing acquisition decision making, identifying opportunities for application of additional engineering and risk mitigation resources, and ensuring overall system readiness. If confirmed, I look forward to working with the Committee to assure our developmental test activities, such as cyber resiliency testing and robust early modeling and simulation testing, are aligned with the new Adaptive Acquisition Framework and properly structured to test and evaluate new capabilities and emerging areas such as artificial intelligence-enabled autonomous systems and software intensive systems.

59. What is the value of robust developmental test & evaluation activities, in your view?

I have been involved in test activities relevant to the research & engineering enterprise throughout my career, and I fully understand that thorough and robust developmental testing and evaluation is a critical enabler to the success of our acquisition programs. Robust development test and evaluation activities are critical to informing acquisition decision making, identifying programmatic opportunities for application of additional engineering and risk mitigation resources, establishing readiness for operational testing, and ultimately ensuring delivery of relevant, timely capability.

60. If confirmed, what would be your plan to develop and implement best practices for effective testing of new and emerging technologies and systems?

If confirmed, I will review the current enterprise test and evaluation processes and best practices and take necessary action to further implement those that support effective testing of new and emerging technologies and systems. This focus is especially critical as more Department of Defense acquisition programs are executing system development within a digital engineering environment, including significant application of Model-Based Systems Engineering. I believe the test community at both the Office of the Secretary of Defense level and within the Military Departments must develop and use best practices throughout program development to ensure testing produces actionable information to inform programmatic decision making and provide

confidence in the intended capability being delivered to the warfighter. If confirmed, I would support efforts to implement best practices for effective testing of new and emerging technologies and systems.

61. What modifications would you recommend to current test and evaluation processes in the Department of Defense to efficiently develop and deliver operationally effective and suitable technologies and systems to the warfighter?

I am not familiar with all of the Department's current test evaluation processes, but if confirmed, I will support the Under Secretary in reviewing and making recommendations to test planning and execution processes for which Research and Engineering is a stakeholder. In developing these recommendations, I will coordinate closely with the Director, Operational Test and Evaluation, the Undersecretary of Acquisition and Sustainment, and other partner organizations.

62. What role do you believe the Office of the USD(R&E) should play in developmental test and evaluation processes within the Department of Defense and what type of organizational structure and staffing would be required to effectuate this role?

I believe the Office of the Under Secretary of Defense for Research and Engineering has a critical role in developmental testing, in that successful developmental test is integral in validating incorporation of critical technologies and capabilities into Department of Defense programs to ensure robust capability delivery against increasing capabilities of the threat. If confirmed, I will assist the Under Secretary in reviews of the organizational structure help her ensure that the developmental test and evaluation function within the research and engineering enterprise is properly staffed and resourced and given the right authorities.

Small Business Issues

The $1 billion+ annual Department of Defense Small Business Innovation Research (SBIR) program has shown great success in investing in innovative technologies and small businesses and transitioning products to acquisition programs and into operational use.

63. If confirmed, how would you ensure that the SBIR program serves a useful purpose in meeting the Department's research goals?

The Department of Defense (DoD) Small Business Innovation Research (SBIR) program has shown great success in investing in innovative technology in the Nation's small business community. If confirmed, I would continue to leverage the over $1B annual investment in America's innovative small businesses via the SBIR and Small Business Technology Transfer (STTR) programs to help achieve the Department's priorities. Through the Department of Defense SBIR/STTR program, small businesses are already contributing to important areas of research and modernization. I would also ensure that SBIR/STTR technologies are considered and incorporated, where appropriate, in the DoD's technology roadmaps.

64. What recommendations would you suggest to the SBIR program to improve the transition of S&T capabilities into acquisition programs?

If confirmed, I would support efforts to improve and incentivize Small Business Innovation Research (SBIR) / Small Business Technology Transfer Program (STTR) technology transition into programs of record. I would also support modifications to the SBIR/STTR program that would allow the Department of Defense more flexibility in further maturing technologies so that they can be inserted and integrated into a program of record or fielded system.

The Department of Defense struggles to keep up with the pace at which technology advances and evolves. Given the Department's lengthy budget cycle, certain technologies can be out of date or less-efficient by the time they are funded.

65. If confirmed, what recommendations would make to the SBIR program to ensure innovative technologies can be integrated into existing Programs of Record to equip the warfighter with the most up-to-date equipment and technology?

If confirmed, I would recommend that the Small Business Innovation Research (SBIR) program assist R&E and the Service Acquisition Executives with reviewing existing projects in the SBIR/ Small Business Technology Transfer Program (STTR) pipeline to determine which ones should receive non-SBIR/STTR funding in order to be integrated/inserted into programs of record or fielded systems. SBIR/STTR technologies are often looked at too late for incorporation into existing programs of record. Reviewing projects on an ongoing basis would better raise awareness of insertion opportunities and better facilitate transition.

66. What recommendations would you suggest to the SBIR program to improve its ability to attract non-traditional defense contractors, such as small startup companies, into the program?

If confirmed, I would recommend that the Small Business Innovation Research program establish a mechanism for educating and preparing firms to do business with the Department of Defense. For example, assistance with understanding proposal submission requirements, assistance with pre-contracting activities, assistance with addressing cybersecurity requirements, and any other assistance that may be provided prior to a contract award.

Defense Laboratories

67. What is your overall assessment of the technical capabilities and quality of Defense laboratories relative to their Department of Energy, Federally Funded Research and Development Center (FFRDC), industry, academic, and foreign peers?

While I have limited insight into the technical capabilities of the Defense and other federal laboratories, my overall impression is that the defense laboratories are competitive with peers in other federal agencies in specific technical areas. However, I do believe that the Department of Defense needs to continually assess its technical capabilities and quality of the defense laboratories as it sees competitive pressure on the laboratory system due to factors such as aging infrastructure and greater competition for talent.

68. What do you perceive to be the most effective management approaches for personnel at DOD laboratory facilities?

Establishing the most effective management approaches is critically important if the Department of Defense's (DoD) laboratories are to succeed in recruiting and retaining top notch talent. While I am not familiar with current DoD laboratory personnel management practices, there may be a need to provide greater management control at the local level. If confirmed, I will assist the Under Secretary in working with DoD laboratory leadership to better understand these issues and make recommendations. Other approaches for consideration could include direct hire, enhanced pay, and other personnel authorities. I would assist the Under Secretary of Defense for Research and Engineering to review these and support expansion of these authorities where appropriate.

69. What are your views on the most effective ways to ensure that the defense laboratories have appropriate research infrastructure and equipment?

Ensuring that the Department's laboratories have the needed infrastructure and equipment requires a long-term, sustained and strategically-aligned effort on the part of the Military Departments and the Office of the Under Secretary of Defense for Research and Engineering. All of the stakeholders must collaborate to ensure that the research, development, test, and evaluation infrastructure needs are adequately communicated to the appropriate decision-makers. If confirmed, I will assist the Under Secretary in ensuring that defense laboratory infrastructure modernization is appropriately prioritized.

70. If confirmed, what steps, if any, would you take to improve the quality, technical capabilities, and mission performance of the Defense laboratories?

The defense laboratories are vital elements of the interconnected academic and industrial base necessary to keep our military the most technologically advanced, lethal, and protected force in the world. If confirmed, in addition to ensuring a continual assessment of the quality, technical capabilities, and mission performance of the defense laboratories, I would continue to advocate for the enhanced flexibilities available to the defense laboratories that have allowed them to remain a competitive and high-performing organizations for the Department of Defense.

71. What is the appropriate balance for the Department of Defense in leveraging commercial R&D and government-exclusive R&D?

The Department of Defense (DoD) needs to maintain a balance between leveraging commercial research and development (R&D) and government exclusive R&D for research areas where the DoD is not the primary driver of the technology. If confirmed, I will assess whether the current Reliance 21 framework includes assessments of areas where the Department can better leverage commercial and other federal agency investment, and how best to do so.

72. Do you believe there are research areas of which the Department should divest itself? If so, what are those areas and how can the Department best leverage associated commercial efforts, in your view?

I understand that the Department has an established governance structure (Reliance 21) by which the Office of the Under Secretary of Defense for Research and Engineering interfaces with the Science & Technology Executives (S&T EXCOM) from across the Services and agencies. Reliance 21 provides a mechanism to continually evaluate the Department's S&T portfolio and assess areas for adjustment in emphasis. If confirmed, I will assist the Under Secretary in assessing those areas where the Department has sufficient investment and those areas that the Department should consider divestment and leverage commercial efforts instead.

Personnel Management

73. If confirmed, which particular research and engineering workforce challenges would you focus on first?

While I have not been briefed on the extend of these challenges, several of the Department's senior technical leaders have stated that retaining experienced cyber and artificial intelligence experts is a continual challenge. If confirmed, I would assist the Under Secretary in assessing the current and projected research and engineering workforce challenges and focus on identifying any skills gaps, and ways by which they should be addressed.

74. Should the Office of the USD(R&E) and organizations under the purview of the USD(R&E) be permitted to apply the same hiring flexibilities as those of the Defense Advanced Research Projects Agency or the Defense laboratories, in your view?

Yes.

75. If confirmed, how would you work with the personnel policy and management communities within the Office of the Secretary of Defense and the Military Departments to ensure that personnel flexibilities are delegated to the lowest appropriate level?

The Department of Defense (DoD) has benefitted from many personnel flexibilities authorized by Congress. If confirmed, I will explore the role that the Under Secretary of Defense for Research and Engineering plays with respect to the Department's technical community and continue to advocate and work with the other DoD offices to ensure that additional personnel flexibilities are available and delegated to the rest of the Department's technical community to attract top talent.

76. In your view, does the Department of Defense have adequate technical expertise within the government workforce to execute its designated acquisition and technical development missions?

The Department of Defense needs to continually grow its technical expertise to address near and long term needs. If confirmed, I will continue to emphasize recruitment, retention, and training efforts in order to keep up with the changes in threats and emerging technologies.

Defense Advanced Research Projects Agency, Strategic Capabilities Office, and Defense Innovation Unit

77. What do you believe is the proper mission for DARPA? For SCO? DIU? For the National Security Innovation Network (NSIN)?

The proper mission for Defense Advanced Research Projects Agency (DARPA) is to pursue high-risk/high-payoff technical and scientific challenges of extreme difficulty, at the cusp of discovery and invention, and thereby cultivate what may develop into transformational capabilities several or even many years later. The Strategic Capabilities Office (SCO) mission is to pursue new prototyping opportunities that will impose cost on our adversaries through novel strategies, technologies, and concepts of operation, often relying on repurposing or leveraging existing technologies in the defense inventory. The Defense Innovation Unit (DIU) accelerates the adoption and harnessing of commercial technology across the DoD, and has several sub-offices, including National Security Innovation Capital (NSIC) and the National Security Innovation Network (NSIN). NSIC accelerates targeted dual-use hardware into the DoD, catalyzing private investment by de-risking development and signaling potential DoD demand. NSIN works to source new talent at universities, to commercialize technology from DoD labs, and to develop novel solutions for DoD challenges through programs like Hacking 4 Defense.

78. What, in your view, is the appropriate relationship between each of these offices and the Military Departments' S&T programs?

These offices should interact regularly with the Military Departments' science and technology (S&T) organizations to both inform them of current projects and plans and be informed about technologies being performed by the Services. While it is important for leadership in these organizations to coordinate regularly, it is more important for interactions to occur at the program manager level where Service laboratory subject matter experts can support specific programs, and be a proponent for Office of the Secretary of Defense S&T organization-developed technology to the respective Service acquisition community. These offices also face similar technology transfer obstacles and should collaborate on mutually beneficial solutions to this problem.

79. What, in your view, is the appropriate relationship between each of these offices and the Military Departments' laboratories?

The Department's laboratories offer many infrastructure resources and subject matter experts which can help the offices in program formulation, source selection, test and evaluation and technology transfer. These offices should view the Department's laboratories as an important source of peer review and continue to involve them as contracting officer's technical representatives. Since many of the technical personnel in the offices serve on a rotational basis, the Department's laboratories should be viewed as an important source of highly qualified future recruits.

80. What, in your view, is the appropriate relationship between each of these and the Military Departments' acquisition programs?

The Defense Advanced Research Projects Agency, the Strategic Capabilities Office, and the Defense Innovation Unit should coordinate frequently with senior Military Department leadership to inform them of ongoing programs. Individual science and technology program management should meet with appropriate acquisition program managers early, often, and deeply to assure the technology being developed meets their needs and to structure a path to transition to a program of record. Memoranda of Agreement/Memoranda of Understanding should be generated to establish each organization's interest and responsibilities. These organizations should also coordinate with the combatant commands to better understand the warfighter needs and conduct demonstrations and experiments at scale with them in the intended operational environment.

81. If confirmed, how would you oversee and support the transition of capabilities from these offices into acquisition programs or operational use?

If confirmed, I would place a high emphasis on working with the Under Secretary of Defense for Acquisition and Sustainment and other stakeholders to identify barriers to the transition process and to foster an effective working relationship with these offices. Collectively these offices all strive to decrease the time to transition innovative technology to the warfighter, and if confirmed, I would welcome the opportunity to work with these offices to improve the transition process.

Science, Technology, Engineering, and Mathematics (STEM) Education

82. In your view, what role should the Department play in supporting STEM education, including for military dependents?

The Department of Defense is the largest employer of Federal scientists and engineers and, therefore, understands the importance of providing meaningful science, technology, engineering, and math (STEM) education opportunities for dependents of service members through formal and informal STEM activities. If confirmed, I will seek to understand the future STEM needs of the Department and our industrial base, and will advise the Under Secretary on ways to meet these needs. STEM education for military dependents should be strongly supported by the Department and there may be ways to leverage the scientists, engineers, laboratories, and engineering centers across the DoD research and engineering enterprise, to include our academic and industry partners, to appropriately support STEM opportunities for military children.

83. In your view, what role should the Department play in supporting STEM education opportunities for transitioning service members?

Departing service members represent a valuable and unique resource through which the Department's future technology needs could be met. A key way to leverage this talent pool would be to provide support for STEM education and provide these veterans with new opportunities to contribute to the national security mission with which they are already familiar. If confirmed, I will seek to better understand the current status of these efforts and advise the Under Secretary on opportunities for improvement.

Health of R&D Enterprise

84. What is your assessment of the current health of the Department of Defense's R&D enterprise as a whole?

The Department of Defense (DoD) has a robust and largely successful research and development enterprise consisting of the defense laboratories, the academic community, the small and large businesses, the Federally Funded Research and Development Centers and University Affiliated Research Centers, and other government agencies. Success, now and in the future is not a given, and I believe that the Under Secretary of Defense for Research and Engineering needs to continue to foster and develop the relationships with all entities across the DoD research and development enterprise. This should be accomplished through greater communication, ease of access, shared understanding of purpose, and breaking through barriers and silos that will allow the research and engineering enterprise to continue to be agile and responsive to the Department's needs, and ensure that DoD retains technological superiority.

85. Are the statutory authorities, rules, and regulations currently in place to govern the Department's R&D conducive to a healthy enterprise? Please explain your answer.

Coming from Defense Advanced Research Projects Agency (DARPA), I have seen how the statutory authorities, rules, and regulations of DARPA allow for a fast paced, healthy, and highly innovative environment that permits the undertaking of high-risk, high-reward endeavors for the future warfighter. If confirmed, I will seek to work with the Under Secretary of Defense for Research and Engineering and other Component leaders to review applicable authorities, rules, and regulations to assure that the enterprise fosters a healthy research and development environment and identify necessary changes.

86. The Department has recently taken criticism for not devoting enough funding to constructing and upgrading facilities, especially those related to testing and R&D. If confirmed, how would you address that issue?

If confirmed, I will support the Under Secretary in evaluating the health of the Department of Defense's research, development, test, and evaluation (RDT&E) facilities to determine modernization requirements, and in collaboration with the Military Departments, work to ensure these RDT&E modernization priorities are appropriately represented in the annual budget deliberations.

Sexual Harassment

In responding to the 2018 DOD Civilian Employee Workplace and Gender Relations survey, 17.7 percent of female and 5.8 percent of male DOD employees indicated that they had experienced sexual harassment and/or gender discrimination by "someone at work" in the 12 months prior to completing the survey.

87. What is your assessment of the current climate regarding sexual harassment, gender discrimination, and other harassment in the Office of the USD(R&E)?

Any occurrence of sexual harassment, gender discrimination, and other harassment within the Department of Defense is deeply disturbing and unacceptable. Such actions foster a climate that is inconsistent with the dignity and respect that our workforce deserves. The Department must continue its work to eliminate sexual harassment, gender-based discrimination, and any other form of harassment or discrimination. If confirmed, I would assist the Under Secretary of Defense for Research and Engineering (USD(R&E)) in reviewing previous workforce assessments including climate surveys, Office of Personnel Management Federal employee viewpoint survey results, and any other documentation that would give me insight into the USD(R&E) organization and help the USD(R&E) make informed decisions on next steps to mitigate, and hopefully eliminate, sexual harassment, gender-based discrimination, and any other harassment within the Office of the USD(R&E).

88. If confirmed, what actions would you take were you to receive or become aware of a complaint of sexual harassment, discrimination, or other harassment from an employee of the Office of the USD(R&E) or an employee of an organization over which the USD(R&E) exercises authority, direction, and control?

I would take the complaint seriously and immediately contact the appropriate office to initiate an investigation to gather all facts, conduct the necessary interviews, collect appropriate information, and address the complaint within the specified guidelines of Department of Defense regulations and policies. If confirmed, I would assist the Under Secretary in reiterating to the workforce of the importance of equality and diversity, as well as our support for the Department's zero tolerance for harassment. Additionally, I would further reiterate my expectations of professional conduct to all employees, and to contractor employees.

Congressional Oversight

In order to exercise legislative and oversight responsibilities, it is important that this committee, its subcommittees, and other appropriate committees of Congress receive timely testimony, briefings, reports, records—including documents and electronic communications, and other information from the executive branch.

89. Do you agree, without qualification, if confirmed, and on request, to appear and testify before this committee, its subcommittees, and other appropriate committees of Congress? Please answer with a simple yes or no.

Yes.

90. Do you agree, without qualification, if confirmed, to provide this committee, its subcommittees, other appropriate committees of Congress, and their respective staffs such witnesses and briefers, briefings, reports, records—including documents and electronic communications, and other information, as may be requested of you, and to do so in a timely manner? Please answer with a simple yes or no.

Yes.

91. Do you agree, without qualification, if confirmed, to consult with this committee, its subcommittees, other appropriate committees of Congress, and their respective staffs, regarding your basis for any delay or denial in providing testimony, briefings, reports, records—including documents and electronic communications, and other information requested of you? Please answer with a simple yes or no.

Yes.

92. Do you agree, without qualification, if confirmed, to keep this committee, its subcommittees, other appropriate committees of Congress, and their respective staffs apprised of new information that materially impacts the accuracy of testimony, briefings, reports, records—including documents and electronic communications, and other information you or your organization previously provided? Please answer with a simple yes or no.

Yes.

93. Do you agree, without qualification, if confirmed, and on request, to provide this committee and its subcommittees with records and other information within their oversight jurisdiction, even absent a formal Committee request? Please answer with a simple yes or no.

Yes.

94. Do you agree, without qualification, if confirmed, to respond timely to letters to, and/or inquiries and other requests of you or your organization from individual Senators who are members of this committee? Please answer with a simple yes or no.

Yes.

95. Do you agree, without qualification, if confirmed, to ensure that you and other members of your organization protect from retaliation any military member, federal employee, or contractor employee who testifies before, or communicates with this committee, its subcommittees, and any other appropriate committee of Congress? Please answer with a simple yes or no.

Yes.