



SCHAR SCHOOL OF POLICY AND GOVERNMENT

Center for Security Policy Studies

at George Mason University

Fourth Annual Symposium on International Security

“Technology and the Future of Warfare”

September 24, 2021

Panel 2: “Tasks: Coordinating Across the National Security Community”

Framing the Technology Policy Challenges for the President – Barry Pavel, Atlantic Council

Barry Pavel is senior vice president and director of the Snowcroft Center for Strategy and Security at the Atlantic Council. He has held numerous high level U.S. government executive branch positions related to national security, most recently as special assistant to the president and senior director for defense policy and strategy on the National Security Council.

Intelligence and Technology in Support of Military Operations – Paolo Costa, GMU

Dr. Paolo Costa is an associate professor of cyber security at George Mason University’s Volgenau School of Engineering, co-director of Mason’s Radio and Radar Engineering Lab, and director for International Collaborations at the Center of Excellence in C4I&Cyber. He previously served as a fighter pilot in the Brazilian Air Force.

Dual Use and Low Technologies: Policy Concerns – TX Hammes, NDU INSS

Dr. Thomas X. Hammes is a distinguished research fellow at the National Defense University’s Institute for National Strategic Studies. He has published three books and over 160 articles on international security issues. He served for thirty years in U.S. Marine Corps and received his doctorate in modern history from Oxford University.

Moderator: Ellen Laipson, Director, CSPS

Moderator Ellen Laipson began the discussion asking the panelists and audience to think about the academic, policymaking, and military communities as parts of a broader ecosystem affecting and affected by technological change. How do technologies migrate from the military to the civilian and private sectors, or vice versa? And who sets the policy guidelines? Why and how do technology issues related to the future battlefield reach the president’s desk for decisions?

Barry Pavel, Director of the Scowcroft Center at the Atlantic Council, drawing on his experience in the strategic planning in the Defense Department, characterized the current situation as “the cusp of the beginning of the digital age,” with tectonic shifts in technology fundamentally altering the social and political landscape of the 21st century. The revolution in biotechnology set to take shape in the 2030s “will make the communications revolution so far look very tame.”

These fundamental changes will leave policymakers struggling to create conceptual frameworks for understanding the new applications of technology and their relations to politics and policy choices, as was the case after the nuclear revolution in the 1950s. Pavel pointed out the inseparability of technological issues from other political arenas: “it permeates everything,” he noted. He argued that coordinating operations across the national government, private sector, and allied and partner states will be critical if the US is to protect its interests and effectively wield its power on the international stage.

Dr. Paolo Costa, Director of George Mason University’s leading research centers: the Center of Excellence in Command, Control, Communications, Computers, Intelligence, and Cyber (C4I and Cyber), provided an overview of the Center’s work and described a few of its projects most pertinent to the future of warfare. The C4I and Cyber Center runs a multitude of projects for federal agencies, US military services, and private corporations to provide interdisciplinary understanding of technology at the systems level.

- **Star Tides** aims to build resilience at the community level against natural disasters.
- **Battle Management Language** is an effort to formalize and standardize command intent such that military orders can be accurately issued and interpreted across language barriers with the help of computer programs.
- **ARAKNID** seeks to create a tool that provides mission commanders with a decision aid to facilitate the tasking and retasking of military assets across organizational boundaries.
- Finally, **the Cybersecurity Manufacturing Innovation Institute (CyManII)**, a project for DOE that includes over twenty-five universities and three national laboratories, is attempting to secure digitalized manufacturing processes and mitigate the risk of cyberattacks to facilitate the digitalization of industry.

Dr. T. X. Hammes, retired Marine general and currently on the faculty at the National Defense University, focused on the the most effective procurement strategies for the uniformed military services. The offense/defense balance has shifted decisively to the defense in an era of pervasive surveillance and autonomous, long-range, precision systems. Considering these trends, Hammes argued that military branches should field “small, smart, and many” weapons platforms instead of the “few and exquisite” legacy platforms that continue to be procured. Underlying this logic is the principle of efficiency and tradeoffs; governments risk the defeat of large, expensive systems by more numerous and cost-effective systems in the hands of adversaries. Bureaucratic and political obstacles, Hammes posited, stand in the way of action on this issue.

During the question-and-answer period, Professor Laipson raised issues of integration of effort within the US government and in alliance or partner relationships.

- Mr. Pavel pointed to the challenges posed by hypersonic missiles that only allies can ameliorate: namely, that early detection in allied territories could drastically improve our

ability to prepare for and respond to any potential hypersonic missiles launched at US territory.

- Both Dr. Hammes and Dr. Costa noted that a key area where the US suffers in its technological competition is immigration policy. Dr. Hammes described the relative closedness of US immigration for STEM students and lack of pathways to permanent residence for students and recent graduates as “suicidal,” while Dr. Costa drew on personal experiences in Canada meeting international students who felt like the US was not a viable option for education, long-term employment, or both.

Finally, the panelists discussed the Indo-Pacific region through a technological lens. Dr. Hammes highlighted the geographical difficulties for European states trying to engage in the region, but also touched on the important roles for European allies and partners in the development of artificial intelligence and effective management of soft power resources. Mr. Pavel broadened the group’s perspective by labeling China as a global power, no longer confined to regional ambitions, adducing its patchwork of military installations, domestic influence networks, and intelligence capabilities. Dr. Costa extended this looked to South America and Africa particularly, where Chinese companies supply a large portion of technological products to various states. All in all, the discussion served to spur critical thinking about the opportunities, challenges, and potential developments related to technology policy in the American context and the competitive, global environment in which the US government must implement these policies.

Connor Monie, CSPS Student Fellow, PhD candidate in Political Science