October 29, 2020

Submitted Electronically

Matthew S. Borman
Deputy Assistant Secretary for Export Administration
U.S. Department of Commerce
1401 Constitution Avenue, N.W.
Washington, DC 20230

Re: Comments on ANPRM on Identification and Review of Controls for Certain Foundational Technologies in Docket No. 200824–0224 (RIN 0694–AH80)

Dear DAS Borman:

The Association for Computing Machinery (ACM)[1] and the Computing Research Association (CRA)[2] respectively represent the great bulk of individuals and institutions responsible for fundamental research in computing in the United States. Having participated in the Bureau for Industry Security's (BIS) early 2019 proceeding with respect to emerging technologies,[3] CRA and ACM's U.S. Technology Policy Committee[4] (USTPC) are pleased to again jointly submit the following comments concerning foundational technologies in the above-referenced docket.

USTPC and CRA anticipate providing more detailed, technically based comments when solicited by BIS in future stages of this docket. In the interim, we write today with regard to question 5 of the Bureau's ANPRM addressing "the impact specific foundational technology controls may have on the development of such technologies in the U.S.". Specifically, we

[1] ACM, the Association for Computing Machinery, is the world's largest and longest-established association of computing professionals, representing approximately 50,000 individuals in the United States and 100,000 worldwide. Our members are engaged in virtually all aspects of computing in academia, government, and both the public and private sectors. ACM is a non-profit, non-lobbying and non-political organization.

[2] The Computing Research Association (CRA) is an association of more than 200 North American academic departments of computer science, computer engineering, and related fields; laboratories and centers in industry, government, and academia engaging in basic computing research; and affiliated professional societies. CRA's mission is to strengthen research and advanced education in the computing fields, expand opportunities for women and minorities, and improve public and policymaker understanding of the importance of computing and computing research in our society.

[3] See, *Comments in Response to ANPRM on Review of Controls for Certain Emerging Technologies in Docket 180712626–8840–01 (RIN 0694–AH61)* of January 10, 2019.

[4] The Committee, to which these comments should be attributed, is charged by ACM with providing policy and law makers throughout government with timely, substantive and apolitical input on computing technology, and the legal and social issues to which it gives rise.

commend BIS for explicitly noting that it does not seek to expand jurisdiction over technologies not subject to the current Export Administration Regulations National Security Decision or to Directive 189, including "fundamental research." We urge the Bureau to maintain that commitment through the course of this proceeding and to reflect it in any rules ultimately promulgated and adopted. We emphasize this point because, as BIS clearly appreciates, fundamental research is an enormously consequential part of what the National Academies have described as the "extraordinarily productive" computing research ecosystem in the United States.

This ecosystem is a complex interplay of fundamental and applied research performed at U.S. universities and federal labs largely with federal support, work in industrial research labs supported by private investment, and the flow of people and ideas back and forth between these institutions. The National Research Council's Computer Science and Telecommunications Board (CSTB) attempted to characterize this ecosystem in a graph, which we commend to your attention.[5] The graph traces a timeline for the development of IT Sectors of the U.S. economy with large economic impact from their origins in academic or industrial labs, to the introduction of first products, then through the development of those products into sectors the U.S. economy valued in billions of dollars.

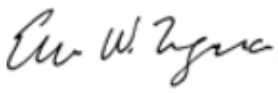
In addition, and more fundamentally, CSTB's work documents several key ideas worth bearing in mind as the present proceeding evolves:

- fundamental research often proceeds for decades before commercialization;
- progress in particular spheres often leads to unexpected progress in other areas;
- research in academia does not supplant research done in industry (and vice-versa); and
- the flow of people and ideas back and forth between institutions and research areas is a crucial prerequisite of progress.

It also makes the compelling point that every technology upon which the nation relies today for its economic leadership and our national security depended upon fundamental research for its development.

CRA and USTPC look forward to continuing to provide input as the present proceeding evolves. Thank you again for this opportunity to comment.

Respectfully submitted,



Ellen W. Zegura
Chair
Computing Research Association

James A. Hendler
Chair
ACM U.S. Technology Policy Committee

[5] See, *www.nap.edu/resource/13427/TireTracks%20Diagram%20-%20CMYK%20120802%20-%20modified.pdf*