

SHAPING CODE

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Abstract:

The recognition of the role of “code,” i.e., the hardware and software of communication technologies, has led policymakers to consider code-based solutions along with legal solutions to address societal problems. Increasingly, code-based solutions have been proposed for issues such as crime, competition, security, free speech, privacy, and the protection of intellectual property. For example, consider the recent debate in Congress about requiring copy protection in all consumer electronics. Or the recent shift in government funding priorities towards funding research in information security while developing technologies for electronic surveillance. This paper provides recommendations for how policymakers can encourage the development of code-based solutions. We provide recommendations for how society can shape the development of code to ensure code serves societal interest, such as innovation, competition, privacy, or public safety.

The first category concerns the use of government’s regulatory and fiscal power to shape the development of code. The regulatory approaches we consider include prohibitions on code, using standards or market-based incentives, modifying liability, and requiring disclosure. Some specific issues we consider are export prohibitions on encryption code, attempting to develop an insurance regime for cybersecurity, and the mandating of digital broadcasting technologies. We also note that modification of liability regimes can result in more secure and safer code.

The second category focuses on fiscal measures, including the funding of research and development, use of the government’s procurement power, tax expenditures, transfer of the government’s intellectual property to the private sector, and finally funding education and training. Our analysis leads us to suggest that government should use its procurement power to favor open standards and open source code. Moreover, to promote technology transfer, we argue that government should place its code into the public domain.

Our overarching review is meant to provide scholars and policymakers with an analysis and recommendations for how society can anticipate and guide the development of code that contributes to our society.