Emerging Digital Technologies and their Improvement to the Liberty/Security Frontier

The Fourth Amendment's protection against unreasonable searches balances security interests with the protection of civil liberties. Numerous commentators have noted that there is necessarily a tradeoff between security interests and civil liberties. This tradeoff principle, subject to important assumptions, means that if a given policy increases security, then enactment will necessarily decrease civil liberties. This relationship can be illustrated graphically by the creation of a security-liberty frontier, akin to the production possibility curve from basic economics. But these tradeoffs between security and liberty are not immutable. Advances in information technology, made possible by reduced costs in gathering and processing information, fundamentally alter tradeoffs for the better. As an economist would put it, the production possibility curve can move outwards, permitting us to have both increased liberty and security.

Our paper reviews the source of these continuing benefits- and shows they not only reflect exponential increases in computer hardware but software and interconnectivity as well. There are four primary ways that emerging information technology improves tradeoffs between security and liberty: (1) it refines search results; (2) it employs machine analysis; (3) it relies solely on objective criteria; and (4) it allows for technologically assisted oversight. First, refining search results reduces false positives. Second, greater machine intelligence limits invasion of privacy because people feel less of an invasion of privacy when a machine rather than a person analyzes information. Third, machine analysis can systematize objective criteria, reducing human discretion. Fourth, because these technologies rapidly decline in cost, they can be used by citizens to watch the government watchers, reducing the possibility of abuse.

We explore theoretically the fundamental alteration of the tradeoff principle by analyzing an outward shifting of the security-liberty frontier. It then provides three concrete examples of this fundamental alteration from our most controversial contemporary Fourth Amendment debates. First, we look at the recent case of Maryland v. King and show that the Court is beginning to take account of the positive aspects of additional data in reducing false positives, but also show that machine analysis of such data bases also tends to make crime detection less discretionary. Second, the debate over stop and frisk shows the possibility of watching the watchers through the use of police body worn cameras. But new emerging technologies of scanners capable of detecting guns will further improve the frontier by make random interactions less necessary. NSA programs

provide an example of the reduction in false positives and objective criteria made possible by accelerating computation. We hope that these examples and our analysis will help show that the widespread notion that information technology only works to threaten civil liberties is mistaken.