

LAST OCTOBER, MILLIONS of interconnected devices infected with malware mounted a "denial-of-service" cyberattack on Dyn, a company that operates part of the Internet's directory service. Such attacks require us to up our technical game in Internet security and safety. They also expose the need to frame and enforce social and ethical behavior, privacy, and appropriate use in Internet environments. Social behavior and appropriate use become even more crucial as we build out the "Internet of Things" (IoT)—an increasingly interconnected cyber-physical-biological environment that links devices, systems, data, and people. Some have suggested that individuals should have a basic right to opt out, delete, or mask their information from systems in the IoT, providing one tenet of a potential IoT "Bill of Rights." However, it may be infeasible or impossible for an individual to control all the data generated about them by IoT systems. Interestingly, strong individual privacy rights may also mean less social benefit. Too many "opt-outs" may erode the public and private value of IoT datasets,³ negatively impacting their social benefit—imagine a Google map where locations come and go. The complexity of providing useful services subject to dynamic participation and evolving individual preferences may be extraordinarily complex to develop and administer. Although much of the policy needed for the IoT may evolve from Internet governance, the scale, heterogeneity, complexity, and degree of technological autonomy within the IoT will require new thinking about regulation and policy and force new interpretations of current law. As IoT technologies become more pervasive, personal information will become more valuable to a diverse set of actors that include organizations, individuals, and autonomous systems with the capacity to make decisions about you. At its best, the IoT has the potential to create an integrated ecosystem that can respond to a spectrum of needs, increasing efficiency and opportunity, and empowering people through technology, and technology through intelligence.²