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THE INTERNET OF THINGS

Daniel O'Maley

Pax Technica: How the Internet of Things May Set Us Free or Lock Us Up. By Philip N. Howard. New Haven: Yale University Press, 2015. 352 pp.

What does the Internet mean for political systems, and for human freedom? During the 1990s and early 2000s, many social scientists equated the Internet's spread with the supposed triumph of liberal democracy. Today, however, scholars share a much gloomier view of the Internet's potential to act as a force for liberation. The same networking technologies that bring us convenience and efficiency can also be used to track us and spy on us. Indeed, skepticism about them has increased greatly in the wake of disclosures made by former U.S. National Security Agency contractor Edward Snowden regarding that agency's vast surveillance network and its reliance on willing Internet and telecommunications companies to share data on citizens and noncitizens alike.

Philip Howard explores the impact of the evolving global digital network on governance worldwide and on the geopolitical balance of power. He is interested in how the ever-expanding web of Internet-connected devices—known as the "Internet of Things" (IoT) and including everything from jet engines to coffee machines—will affect information flows and resource allocation. and. As devices that connect to the Internet (such as cars, thermostats, watches, and a plethora of other everyday items) proliferate, so too does the vast amount of data that they create and collect. This information is a boon in many ways because it can be used to improve efficiency, but there are grave potential risks too. An Internet-connected heart pacemaker is a plus for health care, but it can leave a

patient exposed to the theft of personal data or even threats to personal safety. And while just which technologies fall into the IoT is still cloudy, Howard thinks that it is not too soon to ask how the Internet will evolve and what that might mean for society. In spite of the perils of networked societies, Howard envisions a rosier future in which technology on the whole improves social conditions and strengthens democracy.

A sociologist by training with a background that includes economics and political science, Howard examines new technologies (building automation, environmental monitoring, political bots, and the like) as well as more established Internet phenomena such as social media and crowdsourcing. He then asks how these might work on a larger scale in the future. While more concrete examples of IoT functionalities would have improved this book, it still does a service by drawing attention to the IoT's sociopolitical effects rather than merely asking what it will mean for the economy, as most previous studies have done.

At the core of the book is Howard's argument that we are at the dawn of a "Pax Technica" in which common technological standards and an international network of devices will produce global political stability. While Pax Americana and Pax Britannica before it rested on hegemonic military power, Howard expects this Pax Technica to emerge from shared dependence on a global, interconnected technological platform that operates outside the jurisdiction of any single nation-state. Stability, rather than coming from a traditional empire, will emanate from an "empire of connected devices." Private corporations, the source of so much Internet technology, will also be central to the maintenance of stability.

Howard defines Pax Technica as "a political, economic, and cultural arrangement of social institutions and networked devices in which government and industry are tightly bound in mutual defense pacts, design collaborations, standards setting, and data mining" (pp. 145–46). In his view, it will add up to a global alliance between state and capital that will help to make the world more peaceful. Howard does not argue that Pax Technica will result in an era of complete peace, but rather that the global network will generate an environment in which technology triumphs over ideology and therefore diminishes large-scale conflicts.

Howard's emphasis on the stabilizing influence of a globe-spanning technological superstructure discounts the degree to which technologies are themselves politically embedded. For example, the adoption of TCP/IP protocol, which is the basis for Internet networking at present, gained momentum in the 1980s only after the U.S. military endorsed its use. And it only became the dominant networking protocol in the early 1990s, after the Soviet Union fell.

Yet at other points in the book Howard does address such concerns. In a play on Samuel P. Huntington's influential 1996 book *The Clash of Civilizations,* Howard writes about "The Clash of Devices." By this, he means the contest between open technologies being developed in Silicon Valley and those being built in China which enable surveillance and

data control. Will Silicon Valley win the race to shape the IoT, or will China? The answer, he says, will depend largely on broad geopolitical and economic factors. Moreover, highly technical and seemingly innocuous decisions about hardware and software standards will have potent and lasting effects on how entire societies work, live, and are governed. To design the building blocks of the IoT is to design the future.

Howard's discussion of the role of the IoT in managing resources and information in regions with governance failures and in failed states is of particular interest. Across much of sub-Saharan Africa, where regulated banking hardly exists outside big cities, new financial services such as M-Pesa now let people in even the remotest areas transfer money easily via mobile phones. In parts of rural Mexico that are controlled by drug cartels, social media allow citizens to publish information about violence even though the government would prefer to see such things kept quiet. These and other examples show how the IoT can empower individuals and create more efficient distributions of resources.

But is more efficient governance the same thing as democratic governance? Indeed, authoritarian regimes are also interested in finding ways to make systems work more efficiently. The IoT may improve resource allocation and decision making in markets, but this does not necessarily mean that it will give citizens more say in how society is run. Howard implores activists to become involved in helping to set global standards so that the IoT remains open and guards privacy. This is essential if the IoT is to succeed in fostering open, democratic governance. Yet it is not clear that this type of advocacy can be effective given that corporations, whose primary concern is profit and not human rights, are driving innovation. *Pax Technica* could use additional concrete examples of how the IoT might improve the political agency of citizens and not merely the bottom lines of companies and the choices of consumers.

Howard concludes with a policy idea that he hopes will make the coming Internet of Things more public-spirited: He suggests that all connected devices be required to tithe some of their processing time toward a task that would benefit the common good. This novel suggestion has potential, but again it points us to the significance of the political: What is the "common good" and who should decide how it can best be served? These are moral and political questions; they can never be merely technical matters capable of technological solutions.

Pax Technica is an excellent book for readers wondering how the coming Internet of Things may affect political life. Howard offers us a compelling hypothesis about the influence of technology on geopolitics and urges us to ask challenging questions about what the world may look like in the not so distant future.

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