Editor's Introduction

"Politics: Who Gets What, When, How"
—Harold Lasswell

Foresight and Hindsight: The Case of the Telephone

To foresee effects of emerging telecommunications technologies, Ithiel Pool began to assemble, step by step, a set of intellectual resources. This selection is a summary of lessons about the validity of methods of forecasting, drawn from the introduction of the telephone. Who foresaw the social impact of the telephone, and by what methods? Were there valid methods that could be applied in other cases?

This retrospective technology assessment was sobering as there were, at the beginning, so few accurate predictions! And yet there were lessons. For example, that the invention of a new technology like the telephone did not alone determine the future: many additional inventions were needed (e.g., bank switching, devices to augment signals over long distances, and the performance of the original invention needed to be improved) to develop the potential and create the pathway for its modern ubiquity. The availability of other individuals who could secure funding and operate businesses played a vital role—i.e., so that market forces could provide a tidal force. And, to build the future, there needed to be visionaries who saw where the creative potential of a new technology could lead and whose vision helped to stimulate other inventions and helped businessmen to secure venture capital.

Communication Technology and Land Use

Several key lessons about the impact of new telecommunications technology emerged from the telephone case and are summarized in this article concerning land use (e.g., the location and size of multisite businesses, effects on urbanization, etc.). Pool found that effects differed in different periods, depending upon the saturation of the new

technology (i.e., a critical mass of other people needed to be acquiring a telephone before it made sense to adopt it); other new technologies (e.g., the streetcar, and then the automobile; the construction technologies for skyscrapers); the changing prices of the new services vs. older services (e.g., the cost of office boys to carry messages prior to the telephone); and other factors.[1]

Within social science, Ithiel Pool's view can be categorized as "soft" technological determinism. That is, technology does not compel new technology and lockstep adaptation of the human race as an autonomous force (the "hard" position) with a logic of its own. But it does encourage further inventions, change relative costs, create new possibilities, and make certain futures and pathways *easier* or more attractive, or more likely to be pursued.

Pool's analysis, however, leads to a deeper and more politically relevant conclusion than a well-elaborated "soft" determinism. If you seek to predict the future by the formula of greater x produces greater y, the curious result is that Pool observes effects for y and against y (e.g., urbanization). And, while there is a main effect, the critical discovery is that the type of telecommunications invention represented in the telephone is a technology of *freedom*—that is, the dependent variable is that people are doing, to a greater degree, what they *want* to do because the technology eventually (e.g., at a degree of critical mass, performance, and affordable pricing) provides an increased general capability and more options. This view (also present in his *Technologies of Freedom*) leads to the reconceptualization of the dependent variable that should be the initially specified focus of forecasting (i.e., "free choice"—meaning both freer from constraints and with more capacity) and to the bold predictions of his later work about how freer people and institutions might decide to organize their lives and activities.

The Mass Media and Politics in the Modernization Process

> The existence of media gives politicians a vastly increased opportunity for leadership. (p. 223, below)

In this third selection Ithiel Pool reviews the (very different) uses of the mass media in the development plans of communist and noncommunist countries. He suggests a broader framework of eight types of possible impact of the mass media and discusses the convergence of findings, concerning when these effects occur, between American experiments and

surveys and these field observations in peasant societies and other cultures: "a happy but rare conjunction of observation with theory in the social sciences" (p. 223, below). The paper then moves beyond content *per se* to begin an analysis of the social and political impacts of such new technologies—for example, in the quotation at the beginning of this section, he notes that any of the mass media give any politicians "a vastly increased opportunity for leadership." (The same type of influence becomes available, in principle, to *anybody* if, using the emerging technologies in the years ahead, they can secure an audience.)

The reader may wish to note, in particular, Pool's brief summary of the use of mass media for education ("distance learning"). At least in the developing world it has proved important to use educational technologies in conjunction with face-to-face relationships with teachers who can use their relationship to engage and sustain motivation. Whether new computer software or interactive video capacities of new technologies can solve this problem remains unanswered.

Four Unnatural Institutions and the Road Ahead

The final selection is a brisk outline of where the analysis is heading. In the background, as he is writing it, Ithiel Pool is also drafting his last (posthumous) book, *Technologies Without Boundaries*, that lays out how different the new technologies will be than in the era of mass communications.

The world has gone through three eras in the past 150 years. From (1) traditional methods of communications in premodern or peasant societies; to (2) one-way mass communications to national audiences; to (3) an emerging era of telecommunications that will be cheap, abundant, high-capacity, interactive, user-controlled, and global and combined with user-controlled computers of rapidly growing capacity. Each of these characteristics represents shifts of resources (and especially control) to the *user*. And, thus, *each* of the new elements contributes to a technology of *freedom* and will probably lead to a far greater reorganization of the world, with a different logic, than was seen for an era of mass market radio and television (and advertising) controlled by only a few institutions.

To put it another way: Pool's argument is that it is wrong to believe that the future of the world will be generated along the same linear trends that popular commentators identified as major effects of earlier communication inventions (e.g., that the telegraph and telephone per-

mitted the management and control of ever-larger bureaucratic organizations). This, Pool argued in the telephone case, was a common error of forecasting: apparently inspired in 1908 by a famous treatise in sociology, popular commentators often have seen new technology, modernization and modernity as one steady progress (i.e., from the *gemeinschaft* of small peasant communities to the *gesellschaft* of impersonal modern societies) and interpreted each new technology as accelerating the story.[2] His argument about "unnatural" institutions seems to imply that people—given freedom—now will seek to restore elements of what was lost (*gemeinschaft*), although there probably will be a wide variation of results as people and institutions, in conjunction with market experiments, explore a range of creative options.

Harold Lasswell's famous framework for the appropriate study of politics ("Who Gets What, When, How?"), quoted at the beginning of this section, also was Ithiel Pool's. It encompassed *all* the processes (not simply the formal actions of governments or activities of politicians) that shaped the bottom lines in people's lives. In this framework, the politics of wired nations are beginning to change deeply, but not as a result of mainstream, liberal, conservative, nationalist, socialist, or self-designated radical political platforms or the categories of analysis and prescription on policy-argument television. New telecommunications technologies will change the "who gets what, when, and how" in the world: the clues for forecasting are provided by a social science analysis that abstracts the critical characteristics that can be initially observed in the impacts of the telephone (the first "wired" invention)—more user-controlled, widely available, low cost, interactive—that made it a technology of freedom. The question of how these potentials can be developed—the barriers, dangers, and policy choices—are the subject of the next section.

Notes

1. The argument that Pool cites, that the telephone was a critical technology to make large urban skyscrapers economically feasible (because the message traffic carried by office boys in densely populated tall skyscrapers would require such space devoted to elevator capacity as to make the skyscraper unfeasible) is intriguing but doubtful. The pneumatic tube offered an alternative for within-building traffic and to deliver messages to a ground floor station for outside delivery. And there were plans underway to connect buildings in parts of Manhattan via an underground network of such tubes.
2. For example, the view of "modern" design and the future that was promoted earlier in the twentieth century and that envisioned homes, buildings, and cities that seemed impersonal, sparse, technological, often with a color palette of white and chrome, decoration with abstract forms, etc.