

# Foreword

By

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With Bakhtin we can agree that all dialogues are unfinished. Though there is no end in sight, some turns in the current of conversation change and reward us in unusually satisfying ways. New vistas and openings reanimate discussion with insightful and, sometimes, disquieting perceptions and comprehensions. Jannis Kallinikos's *Governing Through Technology: Information Artefacts and Social Practice* is such a turn. A rare thoughtfulness, care, analytical sharpness, and breadth of vision infuse every page of this book.

I first became aware of Kallinikos's work in 2006 when I happened across the trenchant 'Farewell to Constructivism: Technology and Context-embedded Action' (Kallinikos 2004b). In this essay, Kallinikos argues that situated studies of local activity misapprehend contemporary technologies and technological systems such as nuclear power, highways, and large information systems. These systems are neither negotiable nor configurable in meaningful ways as suggested by concepts of situatedness; they do not admit of personal choice, or selective engagement based on individual preferences.

I found this observation particularly interesting since my professional community of American informatics subscribes enthusiastically to notions of 'user control,' 'malleability,' 'personalization,' 'customization,' 'adaptive interfaces,' and so on, as significant markers of our relations to digital technologies. A reading of Kallinikos's paper shows that no matter how well-intentioned, such notions mislead. They circumscribe (as Kallinikos helps us see) our field of vision to 'users' confronting devices or software programs.

In his precise, economical way, Kallinikos (2004) asserts the problematic nature of such a position, making the critical point that construals of technology

cannot be exhausted at the very interface upon which humans encounter technology. Essential strips of reality are not observable or even describable at the level of contextual encounters.

It is the heroic undertaking of *Governing Through Technology* to enable us to progress toward more cogent means of observing and describing those 'essential strips of reality.' Kallinikos approaches this vital project with several tricks up his sleeve, or perhaps I should say artfully managed intellectual techniques. These

techniques are deployed in the service of producing a book that is genuinely *useful*, offering a set of bold, carefully worked claims that aid the reader in transcending comforting but vague, and even ill-considered, notions of technological self-efficacy, and somewhat blurry concepts and assumptions suggesting the equivalence of technology and practice.

Kallinikos's first technique is to urge us to reexamine our invocation of terms such as 'negotiate' to indicate relations between social practice and technology. While evocative, we apply these terms (others that come to mind are 'mutually constitute,' 'interpenetrate,' and 'entangle') loosely, not knowing quite what we mean by them. They carry pleasing connotations of flexibility and interconnection, and we turn to them to critique rigid notions of technological determinism. We certainly feel better for having done so, but what, in the end, do we mean?

'Negotiation,' for example, as Kallinikos observes, denotes a relation in which two or more parties with divided interests attempt to come to terms with one another. Even setting aside the precarious notion of a human negotiating with say, an Enterprise Resource Planning system, to use one of Kallinikos's analytical objects, a more serious complication lies in the way this rendering presupposes two distinct, separable entities, independently formed. Kallinikos argues that humans (or their social practices) cannot be seen thus; they are, in part, unmistakably *products of technologies*. As he succinctly puts it, 'Technology is not exogenous to human agency, as the contrast of humans to machines may initially suggest.'

Kallinikos develops concrete instantiations of this claim. For example, our professional skill sets arise as a direct outcome of the technologies with which we do our work. One does not have to look far to find resumes cheerfully boasting 'Skills': Java, C++, XML, UML, Rational Rose! The software engineer whose resume is thus assembled has hardly entered into negotiations with these technical languages and platforms; he has assimilated them, and they have become, in critical ways, who he is, instrumentally with respect to the functions he can perform at work, and in his very identity as someone skilled at applying them. A notion of negotiation then, in which separate parties square off trading points of divided interest, misses a fundamental reality in which technologies cultivate and bring forth our selves, rather than standing apart from those selves. Throughout the book, Kallinikos administers the gentle but firm technique of prompting us to say or think what we mean as we speak of negotiation, and so on, to construe the human relation to technology.

A second technique Kallinikos mobilizes, perhaps less gently and with more force, is to insist on positioning questions of technology in a wide historical purview. This strategy is imperative for foundational theoretical reasons: contemporary technologies, especially digital technologies, are interlinked over vast spatial scales,

and each is the outcome of lengthy historical processes. The linkages and processes are broad and deep; their nature is revealed only when analysis occurs at appropriate temporal and spatial scales. Linkages and processes ‘penetrate deep down into the social fabric,’ as Kallinikos says, and produce, in part, the micro-order of social practice. If we turn away from analyzing them, we can never hope to achieve knowledge of practice that extends very far beyond limited, ahistorical accounts.

Framed in another way, Kallinikos’s advocacy of historical analysis is a technique to argue for change in intellectual practice. He observes that the instrumental bias of research in organizational studies, information science, computer science, and management studies leads us toward detailed investigations of particular technologies (in the hopes of deploying them more effectively) and away from broad questions about technology that have been raised at least since Plato’s time. In the current context, we are reluctant to deliberate on “technology in the singular,” and so we dumb down, in a way, issues of *techne* by busying ourselves observing particular technologies in local contexts, and the infinite twists and turns they offer up to our gaze. Furthermore, the ‘complex and time-evolving’ patterns that comprise Praxis, which we should aim to grasp, yield to smaller studies of practice. Academic silos exacerbate the situation; which ‘department’ is in charge of the big picture?

A third technique, pursuant to the second, is to place before us, throughout the book, the Question that Will Not Go Away. Although we may feel sure that we have beaten the technological determinism horse to death, Kallinikos reminds us that the ‘regulative regime’ of technology is alive and well. We cannot avoid it in discussions invoking memes such as ‘code is law,’ video game addiction, the ubiquity of hacking, cognitive and social dangers of multitasking with our arrays of digital technologies, the advent of ‘CrackBerries.’ Such rhetoric—necessary, it seems, in light of the experiences we are having with digital technologies—is not intended to resurrect simple causal schemes of ‘the technology made me do it’ variety, but appears in the discourse as a result of the powerful shapings technology entrains. It is incumbent upon us to examine these shapings and their undeniable presence in our lives.

A fourth technique, and perhaps one that sets Kallinikos’s analyses apart from some other ambitious treatments, is that the *human person* is always present. Analysis at scale is capable of preserving the person, offering understandings complementary to those obtained when the level of abstraction begins at the organization or network. In reading *Governing Through Technology*, though we are immersed in difficult questions concerning the properties of huge technological systems cast in highly abstract terms, we are never actually very far from the people enmeshed in these systems. Kallinikos’s portrayal of the workers in the Scandinavian dairy processing plant struggling to understand the computer printouts that are supposed to govern

their work is an unforgettable image. The superlative contribution of the book is to enable us to see the workers in a complex historical system stretching from the local work group in the dairy, to the plant, to the dairy and global software industries that impose the necessity of the printouts and everything they encumber. Within this broad scope, Kallinikos addresses the ‘strips of reality’ that form the person: skill making, the mediation of reality, identity building.

Casting his eye down this line of sight, Kallinikos draws on art as well as science to weave his special web. For it is a web indeed; once within we can no longer be satisfied confusing or conflating social structure and technology, collapsing crucial categories to avoid the daunting task of understanding the grounds upon which they must be distinguished from one another. Kallinikos responds to the enormity of this task with a formidable ensemble of tools: logic, theory, rigorous empirical study, a deep reading of multiple literatures, and art. He concludes *Governing Through Technology* with an excursion to Italo Calvino’s *Invisible Cities*. Herein Marco Polo and Kublai Khan enter into an epic chess game out of which Kallinikos adroitly derives understandings of the ways in which the representations and abstractions of digital technology alter, and, in some cases, shrink and distort ‘the plenitude of reality,’ as Kallinikos estimably calls it, through the specific, particular properties of the technology. Such a maneuver, that is, invoking a dense literary metaphor, is a final technique, to afford us, the readers, another mode in which to discern the complex questions with which Kallinikos contends. Above all, *Governing Through Technology* is a generous book; Kallinikos holds himself to very high standards of precision of thought and expressiveness from which the engaged reader profits immensely.

*Governing Through Technology: Information Artefacts and Social Practice* is a decisive turn in the unfinished dialogue regarding technology and practice. That the dialogue stretches back centuries bespeaks its enduring importance and the “wicked problems” it insinuates into our attempts to understand who we are. About these wicked problems Kallinikos has much to say. Some peaceful hours of quiet (perhaps stolen from the very technologies that Kallinikos writes about so perceptively), devoted to this remarkable book, will repay study many times over.