Alex Groce (agroce@gmail.com), Northern Arizona University

Manuel Castells' *The Rise of the Network Society* is the first volume of a trilogy, *The Information Age*. It is a sociological work describing a new world arising from what some have called the second industrial revolution, the information revolution that is both the bread and butter and the water we fish swim in, for software engineers.

This book (and the larger work it is the first, and perhaps most important, part of) aims to do nothing less than describe the change in the world arising from the development of information technology. The scope of Castells' investigation is perhaps best explained by describing each of the nine major sections of the book.

The not-insubstantial prologue ("The Net and the Self") lays out the basic argument of the work, and the claim that at "the end of the second millennium of the Christian era several events of historical significance transformed the social landscape of human life." Castells, perhaps in direct contradiction to the claims of, say, Vaclav Smil, that information technologies, while important, are not notably visible in the fundamental energy and material aspects of human society, argues this transformation has changed, and is changing, the material basis of society at an accelerating pace. Castells situates even capitalism and statism as aspects embedded in this transformation, rather than fundamental polarities controlling it.

The first proper chapter, "The Information Technology Revolution" compares the information technology revolution to the industrial revolution, explains what Castells sees as its basic historical sequence, and then focuses on the ideas, locations, and key players in this revolution. Ideas of multiple centers, and a vast periphery, with connections between the centers and other centers, skipping over the immediate geographic place of each center, that become central to the final analyses of the book, begin to take shape in this early explanation.

The second chapter, "The New Economy: Informationalism, Globalization, Networking" addresses the specifically economic aspect of the revolution just defined and introduces the themes of globalization and of a networking mode, as opposed to previous modes, of business.

This last idea dominates the third chapter, "The Network Enterprise: the Culture, Institutions, and Organizations of the Informational Economy." The abstract and somewhat grandiose nature of the themes mentioned thus far may suggest this is a book that operates at a dismaying level of abstraction. In fact, the book is full of graphs, charts, tables, and organized facts in marching order. Castells best moments are arguably when, as in this chapter, he focuses in on a particularized topic that demonstrates his larger point; here he insightfully explores the nature of East Asian business networks.

The fourth chapter, "The Transformation of Work and Employment: Networkers, Jobless, and Flex-Timers" is the last chapter that is largely concerned with the economic aspect. After that, the fifth, sixth, and seventh chapters move towards a McLuhan-esque (but with better facts to

back the ideas up, not just a series of striking anecdotes) look at human life in general under the informational paradigm: these chapters, titled, respectively “The Culture of Real Virtuality: the Integration of Electronic Communication, the End of the Mass Audience, and the Rise of Interactive Networks”, “The Space of Flows”, and “The Edge of Forever: Timeless Time,” offer a view not just of how economic life is transformed, but of how humanity has adopted historically novel ideas about space and time under the influence of the informational model.

Finally, a brief conclusion summarizes Castells’ idea of the criticality of flows and morphology, over even “power” or “social action” in the information-technology-centered world. It also prepares the way for the second and third volumes of the trilogy.

This is all very interesting, you may say, but what can it do for the humble working software engineer? Directly, very little – though I think understanding the ideas about the structure of the economy, and the changing nature of work, might be of minor value in climbing a career ladder! This book will not help anyone write better code, or hold a more productive meeting. However, at some point, every engineer has to think about the society their efforts are part of, and there is no other single book of which I am aware that explains more aspects of the particular information and network age in which we live than this one.