Everybody knows that digital technology has revolutionized our economy and our lifestyles. But how many of us really understand the drivers behind the technology – the significance of going digital; the miniaturization of electronic devices; the role of venture capital in financing the revolution; the importance of research and development? How many of us understand what it takes to make money from innovative technologies? Should we worry about manufacturing going offshore? What is the role of India and China in the digital economy? Drawing on a lifetime’s experience in the industry, as an engineer, a senior manager, and as a partner in a global venture capital firm, Henry Kressel offers an expert personalized answer to all these questions. He explains how the technology works, why it matters, how it is financed, and what the key lessons are for public policy.

Henry Kressel is a Managing Director of Warburg Pincus, LLC. He began his career at RCA Laboratories where he pioneered the first practical semiconductor lasers. He was the founding president of the IEEE Laser and Electro-Optics Society (LEOS) and co-founded the IEEE/OSA Journal of Lightwave Technology. He is the recipient of many awards and honors, a fellow of the American Physical Society and of the IEEE, and the holder of thirty-one issued US patents for electronic and optoelectronics devices.

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Competing for the future

How digital innovations are changing the world

HENRY KRESSEL
WITH
THOMAS V. LENTO
For Bertha
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The idea for this book has its origins in a visit to the University of Cambridge in 2005, hosted by Professor Ian Leslie, Pro-Vice-Chancellor (Research). I am very grateful for the insights I gained from him regarding the technology programs at the university. I met some of the faculty and students of the Cavendish Laboratory, a place where so much of the world’s basic scientific work was accomplished. I also visited a number of entrepreneurial companies founded to commercialize the innovations that grew out of university research. I am indebted to Lord Broers, former vice-chancellor of the university, and to my partner Dr. William H. Janeway, Chairman of Cambridge in America for making the appropriate introductions to facilitate my visit and the many valuable discussions.

These visits called to mind the long chain, bridging the centuries, that links fundamental scientific discovery to technological advances. This process has accelerated dramatically in the twentieth century, allowing digital technologies to transform the modern world in a remarkably short time. Why and how this has happened, and the consequences of the transformation, are among the topics that I have explored in this book.

In deciding to write this book, I have been fortunate in working with Thomas V. Lento, without whom it would not have been completed. His collaboration was critical in shaping its contents.

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