

The Nature of Technology: What It Is and How It Evolves


By W. Brian Arthur




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“More than anything else technology creates our world. It creates our wealth, our economy, our very way of being,” says W. Brian Arthur. Yet despite technology’s irrefutable importance in our daily lives, until now its major questions have gone unanswered. Where do new technologies come from? What constitutes innovation, and how is it achieved? Does technology, like biological life, evolve? In this groundbreaking work, pioneering technology thinker and economist W. Brian Arthur answers these questions and more, setting forth a boldly original way of thinking about technology.

The Nature of Technology is an elegant and powerful theory of technology’s origins and evolution. Achieving for the development of technology what Thomas Kuhn’s *The Structure of Scientific Revolutions* did for scientific progress, Arthur explains how transformative new technologies arise and how innovation really works. Drawing on a wealth of examples, from historical inventions to the high-tech wonders of today, Arthur takes us on a mind-opening journey that will change the way we think about technology and how it structures our lives. *The Nature of Technology* is a classic for our times.

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Editorial Review

From Publishers Weekly

What is technology in its nature, in its deepest essence? Where does it come from? How does it evolve? With contagious enthusiasm, Arthur, an economics professor and a pioneer of complexity theory, tries to answer these and other questions in a style that is by turns sparkling and flat. Technology is self-creating, though it requires human agency to build it up and reproduce it. Yet technology evolves much like organisms evolve, and Arthur cannily applies Darwin's ideas to technologies and their growth. All technologies descend from earlier ones, and those that perform better and more efficiently than others are selected for future growth and development. But radical novelty in technology cannot be explained by this model of variation and selection, so Arthur argues that novel technologies arise by combination of existing technologies. For example, a hydroelectric power generator combines several main components—a reservoir to store water, an intake system, turbines driven by high-energy water flow, transformers to convert the power output to a higher voltage: groups of self-contained technologies—into a new technology. Arthur's arguments will likely alter the reader's way of thinking about technology and its relationship to humanity. (*Aug.*)

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Review

"...enlightening and stimulating, enhanced by a remarkable diversity of historical examples...The book invites comparison to work by Thomas Kuhn...Economists, social scientists, engineers and scientists all may come to regard it as a landmark." —*Science*

"Provocative and engaging...Arthur's theory captures many well-known features of technological change [and] also answers interesting questions."—*Nature*

"...reframes the relationship between science and technology as part of an effort to come up with a comprehensive theory of innovation... Dr. Arthur is bold in his reassessment of the role of technology in science." —*The New York Times*

Review

"Brian Arthur's brilliantly original analysis of how technology develops and evolves reminds me of Euclid's Geometry -- it's clear, simple and seemingly self-evident now that a master has spent years working it out. *The Nature of Technology* is a seminal work, thrilling to read and rich in implications for business as well as engineering and the social sciences." -- Richard Rhodes, Winner of a Pulitzer Prize in Nonfiction for *The Making of the Atomic Bomb*

"*The Nature of Technology* is the most important book on technology and the economy since Schumpeter. In clear, lucid prose and with fascinating examples, Arthur describes how technology 'creates itself' in an evolutionary process that has taken our world from stone tools to iPods. A work of deep and lasting importance that deserves to be widely read -- you will not think about technology the same way again." -- Eric D. Beinhocker, author of *The Origin of Wealth*

"The refreshing clarity that Brian Arthur brings to the most overwhelming force in the universe will benefit anyone trying to tame technology -- critics, eager boosters, and the perplexed alike." -- Kevin Kelly, author of *New Rules for the New Economy*

"Hundreds of millions of dollars slosh around Silicon Valley every day based on Brian Arthur's ideas." -- John Seeley Brown, former director of PARC

"We launched Java based on Brian Arthur's ideas." -- Eric Schmidt, CEO of Google

Users Review

From reader reviews:

Charles Tebo:

Reading a reserve tends to be new life style in this particular era globalization. With reading through you can get a lot of information that may give you benefit in your life. Along with book everyone in this world can share their idea. Guides can also inspire a lot of people. Many author can inspire their very own reader with their story or maybe their experience. Not only the storyline that share in the guides. But also they write about advantage about something that you need illustration. How to get the good score toefl, or how to teach your kids, there are many kinds of book which exist now. The authors on earth always try to improve their ability in writing, they also doing some analysis before they write for their book. One of them is this The Nature of Technology: What It Is and How It Evolves.

Ronald Brun:

The publication with title The Nature of Technology: What It Is and How It Evolves contains a lot of information that you can understand it. You can get a lot of help after read this book. This specific book exist new expertise the information that exist in this book represented the condition of the world at this point. That is important to yo7u to learn how the improvement of the world. This book will bring you within new era of the the positive effect. You can read the e-book in your smart phone, so you can read the idea anywhere you want.

Tamika Sheppard:

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