Box I.1
Architecture and Economics

This book's approach to the study of architecture and innovation is an example of a more general approach to studying the architecture of complex systems, an approach I call *architecture and economics*. The approach understands architecture as one of several constraints on human behavior and uses economic theory (broadly defined) to explore the effect of these constraints. In its narrowest meaning, "architecture and economics" denotes efforts to understand how the architectures of complex systems influence, and are influenced by, the economic systems in which the complex systems are designed, produced, and used. As we saw above, the links between architectures and economic systems have important implications for how businesses compete and how public policy is made. While this book focuses on the effect of architecture on a specific economic activity (innovation), the underlying framework is general and can be used to understand the effect of architecture on a much broader range of human behavior. Viewed from this perspective, "architecture and economics" describes a much broader field of research—efforts that use economic theory to understand how architectures affect specific forms of human behavior, and, more generally, how architectures influence, or are influenced by, economic, social, cultural, or political systems.[a] I use the term in the broader sense.[b]

a. I do not mean to imply that this type of research has not existed so far. Most research in this area, however, focuses on specific architectures or design principles. For example, a large body of literature in management science and engineering explores the economic effect of modular and integrated architectures in the design of physical products. (See note 4 to this chapter for references to this literature.) There is some research in software engineering that examines the economic effect of software architectures (e.g., Sullivan et al. 1999; Boehm and Sullivan 2000; Sullivan et al. 2001; Erdogmus et al. 2002). Representative examples of legal scholarship exploring the effect of the Internet's architecture are Lessig 1998, Lemley and Lessig 1999, Lessig 1999a, Lessig 2001, Wu 2003a, Benkler 2006, Balkin 2008, and Zittrain 2008. There is, however, no established field of research that connects work in this field under a common umbrella, nor is there an accepted framework or methodology for exploring these issues. Among others who have advocated for a more unified approach to the study of the architectures of complex systems are Baldwin and Clark (2006b) (who advocate a "science of design" that would cover questions very similar to the ones outlined in the text) and van Schewick (2004).
b. "Law and Economics" has a similar dual meaning. It is used to describe the study of the relationships between law and the economic system, but it also describes, more broadly, efforts to understand the effect of law on human behavior using economic theory. For an overview of the different schools of thought within this field, see Mercuro and Medema 2006.

Internet Architecture and Innovation

Barbara van Schewick

The MIT Press
Cambridge, Massachusetts
London, England

Set in Stone Sans and Stone Serif by Toppan Best-set Premedia Limited. Printed and bound in the United States of America.

Library of Congress Cataloging-in-Publication Data

Van Schewick, Barbara.
Internet architecture and innovation / Barbara van Schewick.
p. cm.
Includes bibliographical references and index.
ISBN 978-0-262-01397-0 (hardcover : alk. paper) 1. Internet. 2. Computer network architectures. 3. Technological innovations. 4. Business—Data processing. I. Title.
TK5105.875.I57V378 2010
004.6'5—dc22

2009037130

10 9 8 7 6 5 4 3 2 1