

The Future of the Internet – And How to Stop It

By Jonathan Zittrain

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“The Internet is primed for a meltdown – and the most obvious cures are just as bad”¹

The Internet has become a vital part of our daily lives – supporting banks, universities, mass transit systems, as well as the everyday consumer. The Internet has become a runaway success, but everything that goes up must come down. In Jonathan Zittrain’s *The Future of the Internet – And How to Stop It*, Zittrain examines the rise of the Internet, and how the elements behind its successful will also lead to its ultimate demise.² Zittrain approaches his thesis with a lively discussion of the past and current states coupled with a foreboding warning for the future, and peppered with examples of new technologies that are already showing the signs of change. Several solutions are offered; however, Zittrain makes clear that no approach will be easy or necessarily welcomed with open arms by the Internet community. Instead, Zittrain offers the warning that some solution must be found, otherwise the Internet that we know and rely on today will be unrecognizable.

The author, Jonathan Zittrain, is well-versed in the current issues facing the Internet and the problems plaguing legal scholars in intellectual property circles.³ He is currently a Professor of Law at Harvard Law School, as well as a co-founder of Harvard Law School’s Berkman

¹ JONATHAN ZITTRAIN, *THE FUTURE OF THE INTERNET – AND HOW TO STOP IT*, (Yale University Press 2008).

² *Id.*

³ Mr. Zittrain received his bachelor’s degree from Yale University, his J.D. from Harvard Law School, and a master’s in public administration from Harvard’s John F. Kennedy School of Government. See About, *The Future of the Internet Blog*, available at <http://futureoftheinternet.org/about.z>

Center for Internet & Society. Prior to joining Harvard Law School, Mr. Zittrain was a Professor of Internet Governance and Regulation at Oxford University, and principal of the Oxford Internet Institute. Also noteworthy, Mr. Zittrain was co-counsel with Lawrence Lessig⁴ in *Eldred v. Ashcroft*,⁵ challenging the Sonny Bono Copyright Term Extension Act of 1998, wherein the U.S. Supreme Court ruled 7-2 to uphold the Extension Act.⁶

The book begins with a discussion of old and new technologies by dividing them into two categories: generative technology and tethered appliances.⁷ Generative technology, Zittrain argues, allows the user to add to it and use the technology in any way he or she can dream up, such as a PC or the Internet.⁸ Tethered appliances, on the other hand, control how the user can operate or use the technology, such as an iPod or Xbox.⁹ The generative characteristic of the Internet allowed it to flourish in circles outside academia, allowing users to add to it, create from it, and collaborate with others from all over the world.¹⁰ Zittrain argues, however, the generative characteristics of the Internet have begun to cause a shift to more tethered appliances. Zittrain focuses on cybersecurity as the generative Internet's main downfall.¹¹ Fear of hackers, privacy concerns, and bad code have led to companies like Apple to switch to a more tethered approach in an effort to prevent users from blindly downloading or adding bad code. This exemplifies Zittrain's thesis; the switch from generative technologies to more tethered appliances puts

⁴ Lawrence Lessig is a notable legal scholar in the areas of Internet and Copyright Law. He is currently a Professor of Law at Stanford Law School, and founder of the school's Center for Internet and Society. See Short Biography, *Lessig 2.0 Blog*, available at <http://www.lessig.org/info/bio>. He has authored many books including *Remix* (2008), *Code v2* (2007), *Free Culture* (2004), *The Future of Ideas* (2001), and *Code and Other Laws of Cyberspace* (1999). Mr. Lessig is also on the board of the Creative Commons project. See *id.*

⁵ 537 U.S. 186 (2003).

⁶ See About, *supra* note 3.

⁷ See ZITTRAIN, *supra* note 1.

⁸ See ZITTRAIN, *supra* note 1.

⁹ See ZITTRAIN, *supra* note 1.

¹⁰ See ZITTRAIN, *supra* note 1 at 42.

¹¹ See ZITTRAIN, *supra* note 1; see also David D. Clark & Majory S. Blumenthal, *Rethinking the Design of the Internet: The End to End Arguments vs. the Brave New World*, 1 ACM TRANSACTIONS ON INTERNET TECH. 70 (2001) (describing how the benefits of the Internet are at odds with security concerns).

innovation at risk.¹² It may lead to more security on the Internet, but is this tradeoff worth it? Can the generative qualities of the Internet that made it so popular be saved?¹³

Zittrain divides his analysis into three parts: “The Rise and Stall of the Generative Net,” “After the Stall,” and “Solutions.” “The Rise and Stall of the Generative Net” tracks the rise of the modern PC and Internet as well as introduces the topic of “generativity.” “After the Stall” expands on the term “generativity” – a word coined by Zittrain. Zittrain defines generativity as “a system’s capacity to produce unanticipated change through unfiltered contributions from broad and varied audiences.”¹⁴ Zittrain explains the features that make a technology generative; leverage, adaptability, ease of mastery, accessibility, and transferability.¹⁵ This concept can be applied to technologies outside of the computer world as well. Zittrain uses duct tape as an example of a generative technology due to its ability to be used in thousands of ways for thousands of uses.¹⁶

“After the Stall” focuses partly on tethered appliances such as TiVos, iPods, and BlackBerries.¹⁷ These devices are built so that the vendor has the exclusive ability to make changes to them; however, Zittrain warns that these devices also make “perfect enforcement” a possibility – allowing control over the behavior of users through preemption, specific injunction, and surveillance.¹⁸ However, with the onslaught of security issues facing generative technology, worn-out users have begun surrendering generativity for appliances that are controlled by the maker instead. Within this section Zittrain also discusses the rise of Wikipedia and its success. He attributes much of Wikipedia’s success to “netizenship,” a notion that users are dedicated to

¹² See ZITTRAIN, *supra* note 1 at 9.

¹³ See ZITTRAIN, *supra* note 1 at 9.

¹⁴ ZITTRAIN, *supra* note 1 at 70. “Terms like ‘openness’ and ‘free’ and ‘commons’ evoke elements of it, but they do not fully capture its meaning, and they sometimes obscure it.” *Id.*

¹⁵ See ZITTRAIN, *supra* note 1 at 71-73.

¹⁶ See ZITTRAIN, *supra* note 1 at 75.

¹⁷ See ZITTRAIN, *supra* note 1 at 101.

¹⁸ See ZITTRAIN, *supra* note 1 at 107-10.

an online project and self-police based on their personal commitments to that project.¹⁹ This design, Zittrain argues, has its drawbacks but also seems to work remarkably well at preserving creativity and collaboration while still providing protections against online vandalism.

Zittrain moves on to “Solutions” by explaining that “we need a strategy that blunts the worse aspects of today’s popular generative Internet and PC without killing these platforms’ openness to innovation.”²⁰ Zittrain acknowledges that this is no easy task, and obvious solutions will not necessarily fix the problem.²¹ He does offer suggestions, however, including user empowerment and a modern Manhattan project to design the tools needed to study the problem and find a solution.²² Zittrain concedes that tethered appliances have their place and will not disappear even if the Internet can be saved, however, he advocates for a balance among the two.

Overall, Zittrain’s thesis is well supported and serious without being overly severe. He does offer a dose of hope for the future by offering feasible steps towards a solution. The analysis of the history of Internet and surround technologies is thorough, detailed, and lays an excellent foundation for Zittrain’s ultimate warning. His analysis is forward-looking and compelling, forcing the reader to take a second glance at a technology that has become essential yet easily taken for granted. However, readers should be aware that although the Internet and the technologies Zittrain discusses are familiar to most, Zittrain makes some assumptions on the part of the reader that he or she has more than a rudimentary understanding of these technologies. While he attempts to lay a base for each technology he introduces, he jumps quickly to a more sophisticated discussion. Therefore, I would recommend the book to scholars and amateurs alike

¹⁹ See ZITTRAIN, *supra* note 1 at 142.

²⁰ ZITTRAIN, *supra* note 1 at 150.

²¹ See ZITTRAIN, *supra* note 1 at 150. Zittrain concedes that simply regulatory solutions will not suffice to fix problems in the long run, because wrongdoers are difficult to track online, and regulations would quash good code along with bad code. *See id.* at 150-51.

²² See ZITTRAIN, *supra* note 1 at 173-74.

– as long as the reader has a sufficient base knowledge of Internet terminology and concepts.

Despite its drawbacks, however, Zittrain introduces a significant thesis with style and interest.