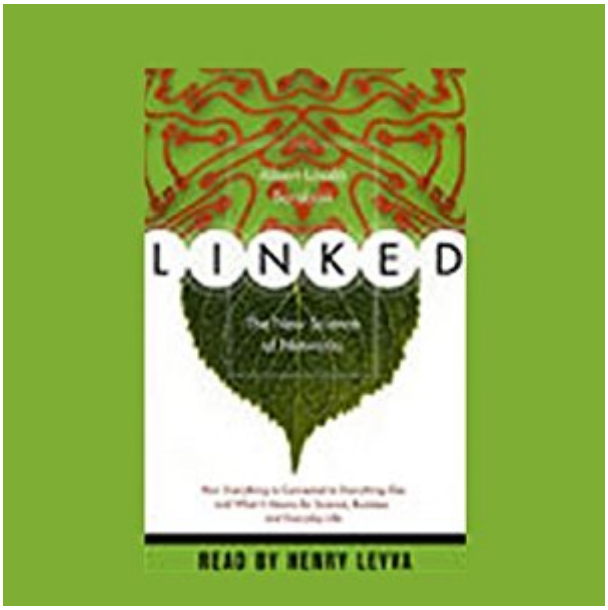
Linked: The New Science Of Networks



Synopsis

From a cocktail party to a terrorist cell, from an ancient bacteria to an international conglomerate - all are networks, and all are part of a surprising scientific revolution. A maverick group of scientists is discovering that all networks have a deep underlying order and operate according to simple but powerful rules. This knowledge promises to shed light on the spread of fads and viruses, the robustness of ecosystems, the vulnerability of economies - even the future of democracy.Now, for the first time, a scientist whose own work has transformed the study of "links and nodes" takes us inside the unfolding network revolution. Albert-Laszlo Barabasi traces the fascinating history of connected systems, beginning with mathematician Leonhard Euler’s first forays into graph theory in the late 1700s and culminating in biologists’ development of cancer drugs based on a new understanding of cellular networks.Combining narrative flare with sparkling insights, Barabasi introduces us to the myriad modern-day "cartographers" mapping networks in a range of scientific disciplines. Aided by powerful computers, they are proving that social networks, corporations, and cells are more similar than they are different. Their discoveries provide an important new perspective on the interconnected world around us.Linked reveals how Google came to be the Internet’s most popular search engine, how Vernon Jordan’s social network affects the entire American economy, what it would take to bring down a terrorist organization like al Qaeda, and why an obscure finding of Einstein’s could change the way we look at the networks in our own lives. Understanding the structure and behavior of networks will forever alter our world, allowing us to design the "perfect" business or stop a disease outbreak before it goes global.Engaging and authoritative, Linked provides an exciting preview of the next century in science.Also available in print from Perseus Publishing.

Book Information

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Customer Reviews

What do sexually transmitted diseases, the World Wide Web, the electric power grid, Al Queda terrorists, and a cocktail party have in common? They are all networks. They conform to surprising mathematical laws which are only now becoming clear. Albert-Laszlo Barabasi has helped discover some of those laws over just the past five years, and though they are some pretty abstruse mathematics, he has written a clear and interesting guide to them, _Linked: The New Science of Networks_ (Perseus Publishing). Not only has he attempted in this book to bring the math to non-mathematicians, he has shown why the work is important in down-to-earth applications.It is important for those multitudes who have no taste for math to know that this is not a book full of equations; Barabasi knows that for most of his readers, doing the math is not as important as getting a feel for what the math does. He explains the basic history of network theory, and then shows how his own work has turned it into a closer model of reality, a model that most of us will recognize. Networks are all around us, and they are simply not random. Some of our friends, for instance, are loners, while others seem to know everyone in town. Some websites, like Google and , we just cannot avoid clicking on or being referred to, but many others are obscure and you could only find them if someone sent you their addresses. Barabasi calls these "nodes" with such an extraordinary number of links "hubs," and he and his students have found laws of networks with hubs, showing such things as how they can continue to function if random nodes are eliminated but they fragment if the hubs are hit.

Updated 28 Dec 07 to add links.I have mixed feelings about this book. On the one hand, it is coherent, thoughtful, and tells a story about the emerging science of networks that anyone, who can read, can understand. This is a non-trivial accomplishment, so 4 stars.However, the book is also--being brilliantly designed to be understood by the lowest common denominator, an undergraduate--somewhat shallow and empty.... especially when compared with Stephen Wolfram’s "A New Kind of Science", 1197 pages not counting the index, which is at the other extreme.Although there are good notes, there is no bibliography, and the author fails to use network methodology to illustrate and document the emerging literature on networks--called citation analysis, this would have been a superb appendix to the book that would have taken it up a notch in utility.Among the

key points that the author discusses and which certainly make the book worth buying and reading, my above reservations not-with-standing:1) Reductionism has driven 20th century science (and one might add, all other knowledge), with the result being that we have experts who know more and more about less and less--and)as CIA and FBI recently found)while leaving us devoid of generalists and multi-disciplinary artists and scientists who can "connect the dots" across these fragmented foci.2) Contrary to the prevailing wisdom about networks being equally distributed and thus largely invulnerable to catastrophic meltdown, the author does a fine job of documenting the importance of selected "hubs", so important that their removal ultimately breaks the network down into isolated pieces.