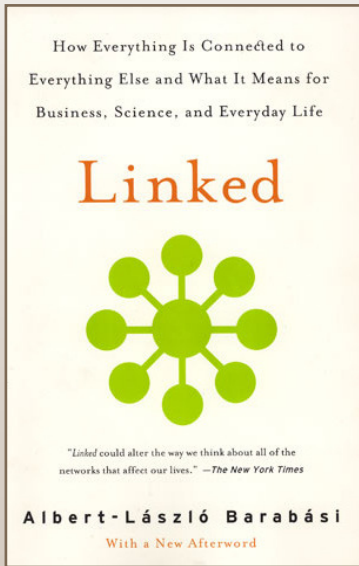


Linked

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About the reviewer



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Laura has an M.A. degree in Change Leadership with a specialization in Organizational Development from the University of St. Thomas in Minneapolis. She is skilled in business/process improvement, facilitation, change management, project management, experiential learning design and development, sales and marketing, creative problem solving and leadership. She has certifications or licenses in Creatrix™, Simplex and LEGO® SERIOUS PLAY™ and is the Marketing Director on the MNODN board.

By **Laura Delavie**

The Wondrous Web of Interconnections

Have you ever considered how close you actually are to a famous person? You know... have you ever played "Six Degrees of Separation"? I am only two people away from Brad Pitt (I used to work with someone who went to college with him). And, here is something I never thought about before reading Linked: I am only three people away from anyone Brad Pitt has acted with or knows. Not only are humans linked to each other, on average, by six other people but every actor is also only about three links away from any other actor. The average link between web pages is 19 clicks and molecules in cells are linked by an average of three chemical reactions. Hmm... if you are wondering 'how can that be' and 'why does that matter to me as an OD practitioner or change agent,' read Linked by Albert- László Barabási, in which the author will take you on a journey to understand the nature and power of networks.

As Barabási says, this journey is an 'eye-opening trip across disciplines to challenge [you] to go beyond reductionism and explore, link by link, the new science of networks' (p.8). Taking you from Euler's graphs to Erdős and Rényi's random networks to Granovetter as well as Watts and Strogatz's clustered networks to Barabási's scale-free networks and beyond, the author explains the history and growth of network theory. In addition, to support his story, Barabási uses cells, viruses, fads, Hollywood actors, the Erdős number and scientific communities, the Internet and the World Wide Web as examples of scale-free networks. These real-world examples help the reader to better understand networks: how they work, why they work, their strengths and their vulnerabilities.

Scale-free networks help to explain why it will be very hard for nations to destroy the Al Qaeda network or a hacker to totally shut down the Web. Did you ever wonder why it is sometimes easy and at other times almost impossible to find information you are looking for on the Web? Scale-free network theory helps to explain why. It explains why researchers now better understand how cells works and how they may one day, hopefully, develop medical treatments tailored to individual human needs.

Barabási became interested in networks in the fall of 1994 while working for IBM. In the fall of 1995, he left IBM for a faculty position at the University of Notre Dame, where he is currently the Emil T. Hofman Professor of Physics and responsible for directing research on networks. Barabási, his student researchers and colleagues would not begin to uncover the nature of scale-free networks until 1998 when they began analyzing the vast data points provided by the Web. Research and analysis led them to power laws, growth and preferential attachment, all of which help to explain the nature of scale-free networks and why the "rich get richer".

One of the strengths of Barabási's story is that he builds on concepts going back to Euler's graph theory from 1736 and incorporates new ideas, concepts and data into developing his scale-free network theory as well as the fitness theory (why latecomers succeed over those with a longer history in the network). A second strength is that, in explaining the connections between network theories

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and his examples, Barabási exemplifies a characteristic of creative thinking - broadening. By broadening and reaching out to other domains of knowledge, one can often generate new connections and, thus, new ideas. If Barabási's student researcher, Ginestra Bianconi, had not considered the Bose-Einstein condensation theory, she likely would not have made the connection between energy and fitness. Through Bianconi's work with Bose-Einstein condensation, we now understand how, on rare occasions, the "winner takes all".

In addition, in the spirit of interconnectedness, Barabási uses the power of his own research network to find, develop and refine his theories. Barabási gives credit to and cites the work of many colleagues, including students, professors and researchers. His story actually shows the concept of network in action.

Even though Barabási is convincing in his overview and explanation of network theory, it was at times difficult to follow the numerous details and technical language while reading [Linked](#). While Barabási uses only a few scientific or mathematical formulas, it was easy to get lost in the details around nodes and links, hubs and connectors, diffusion, power laws, fitness, preferential treatment, scale invariance, renormalization and phase transitions. In addition, Barabási continued to bring past theory into the discussion regarding scale-free networks to seemingly support his story. Doing so, he sometimes made the flow of information confusing. So, a caveat in reading [Linked](#) is: read slowly and take notes. Creating your own mind map, showing the connections between information, might even be a good way to practice the power of networks.

From the beginning of my journey into [Linked](#), I wondered about the implications of networks on the acceptance of innovations, in particular, breakthrough

innovations. Barabási speaks directly to the impact of networks on the spread of innovations in his chapter on viruses and fads. The power of networks is important to consider when launching an innovative product or service (or introducing any kind of change for us OD practitioners).

By understanding the nature of scale-free networks and planning strategically, an organization may be able to tap into the power of the network and experience significant change and growth. In OD work, we identify key stakeholders, including resistors and champions, when planning our actions around change. In order to be most effective, one must determine and work to influence the hubs of the network. [Linked](#) helps OD practitioners understand the power of networks, including why developing a good communication plan that includes actions for sponsors, resistors and champions, is crucial to successful change.

Two other connections between the nature of networks and the world of OD include:

- Self-Organizing: Even though scale-free networks seem complex and chaotic (which they are), laws and order do exist, enabling them to be self-organizing. Despite the chaos, the beauty of the network is that it lends itself to order.
- Gestalt: Networks display a gestalt nature through their links and connections. In referencing future medical treatments, Barabási states that "advances are rooted in a fundamental shift in how we look at everything from life to disease. They are the result of seeing the cell as a whole - a network - rather than a bag of independent chemicals" (p. 196).

Even though [Linked](#) was full of many details, technical concepts and, at times, a difficult read, it provides good information

to help you understand networks. An important consideration for anyone reading [Linked](#) is to understand not only that connections are everywhere but also to consider how best to use that understanding in life, relationships, business and beyond. It is a wondrous web "we" weave; both in the networks we create and in those we understand and act upon.

Comments on [Linked](#) by November Monthly Program Presenter, Seth Mattison

The Millennial Generation will be the most networked and well connected generations in the history of world. This generation inherently understand the importance and power a strong network creates for the individual. They're networks are reaching far beyond their neighborhoods, their offices, their companies, their country, to the entire world. They are truly creating a global village and pushing the boundaries of collaboration. As older generations are grappling to get their arms around the concepts of [Linked](#), the millennial generation is living it every day.

It will be important for OD practitioners to remember how critical Millennials can be in helping spread change through out an organization. Look no further then what happened last year with Obama's "Change" campaign and his army of Millennial supporters. Obama harnessed this concept and leverage a generation that connects and builds networks like never before, and as result, became the 44th president of the United States. The power of networks can and will bring powerful change to our world. We need to pay attention to [Linked](#) and how networks will affect the way we do business in the era of connections.