
Today’s information technology, telecommunications and transportation systems, enable us to interact and collaborate in unprecedented ways. Innovation management is one area where the new challenges and opportunities are readily apparent. The Global Brain takes a comprehensive look at network structures and dynamics as the keys to successful open innovation. Satish Nambisan, of Rensselaer Polytechnic Institute, and Mohanbir Sawhney, of Northwestern University, draw on their years of experience in academia and industry, as well as recent interviews with senior innovation managers at large companies, to provide a framework for designing and managing innovation networks.

Nambisan and Sawhney define Network-Centric Innovation (NCI) as “an externally focused approach to innovation that relies on harnessing the resources and capabilities of external networks and communities to amplify or enhance innovation reach, innovation speed, and the quality of innovation outcomes.” The Open Source Software Community is one well-known example of NCI. Its fundamental principles include: shared goals and objectives, a shared “world view,” cumulative knowledge creation in groups, and architecture of participation.

The authors present four models of NCI, which differ in terms of their network leadership (centralized vs. diffused) and innovation space (defined vs. emergent). The 787 is presented as an example of the Orchestra Model. “Boeing assembled a set of global partners whom it could trust with the process of creating entire sections of the plane, from concept to production.” The Creative Bazaar Model provides the opportunity for a company to shop for technology at various stages of maturity, i.e., from raw ideas to market-ready products. A Procter & Gamble case study underscores the crucial role of idea intermediaries, such as idea scouts and patent brokers. The Jam Central Model may be best known in relation to software, but its style of diffused leadership and emergent innovation spaces has also been adopted in other domains, such as the biomedical research community. The MOD (Modification) Station Model provides a measure of control over the innovation space, while allowing diffused leadership throughout the innovation network. Computer game “modding” and Internet content “mash-ups” are discussed as examples of this model in action.

Within each NCI model, the authors have identified three main types of roles. “The architect is the central member (or set of members) who designs and influences the evolution of an innovation network. . . . Adapters. . . . adapt to the direction of the architects and play a supporting role. . . . Agents serve as brokers, bridges, or go-betweens in innovation networks.” For each NCI model, there is an extensive discussion of network governance, knowledge management, and intellectual property (IP) rights management, as the primary elements of innovation network management.

The chapter on preparing an organization for innovating within a specific NCI model begins with techniques for readying the culture, and continues with a discussion of structures and processes to support the innovation network. Because what gets measured gets done, the authors have wisely provided a compact set of network-related and company-related metrics. The brief chapter on globalization highlights some business opportunities in China and India, but it is not clear why this information is presented separately from the previous chapters. The main message of this book, namely the strategies, models and roles of NCI, clearly transcends geographic boundaries by extending organizational and thinking boundaries. The final chapter offers some common-sense (yet sometimes easy to forget) advice for managing innovation networks, and more generally managing change within an R&D organization.

This book was written with multiple audiences in mind. Readers who are new to the subject will benefit from the thorough review of terminology, history and principles of network centricity. Tactical managers will appreciate the level of detail in the case studies that illustrate the four models of network-centric innovation, the discussion of their characteristics, the side-by-side comparisons to alternative practices, and the explanation of roles in innovation networks. The two chapters on selecting the right model(s) and role(s), and preparing the organization, are addressed to technology executives. The book focuses primarily on the roles played by large companies in innovation networks, but it also addresses the perspectives of other participants in the networks. Overall, The Global Brain is an enjoyable read, filled with practical insights about how to create value by innovating together with the “outside world.”

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Group Genius:
The Creative Power of Collaboration;
Keith Sawyer;
Basic Books, NY, 2007;
274 pp., $26.95.

If you’re involved in a business that depends on sustained innovation (and which doesn’t?)—especially if you’re a
manager who can influence decisions and resources—then add this to your reading list. Keith Sawyer’s writing is direct, clear, even friendly, and the text is unencumbered by ponderous footnotes and thick quotations. An associate professor of psychology at Washington University, St. Louis, Sawyer’s personal hobbies of jazz and improv theater appear again and again to support his thesis that innovation is a product of groups, and that the solitary genius is a myth. But the scope of the book is more than that: it covers the important and current thinking about fostering innovation in the Internet-enabled age.

By my own reading and experience in a research-driven Fortune 500 corporation, the innovation literature is converging on a number of “best practices.” Sawyer captures them well, and with his well-chosen supporting anecdotes these are reason enough to read the book and get to work applying these lessons in your organization:

• Poorly structured, lazy brainstorming is practiced so frequently and is so wasteful, we can’t have enough books that reveal its flaws and how to improve upon it. Sawyer’s treatment is excellent.

• Sustained innovation depends on having many irons in the fire, with the corollary that failure will be frequent and must be supported.

• Myths about lone geniuses need bursting. Even those who work alone stand on the shoulders of giants, and implementation always needs teamwork and has its own continuing need for creative problem solving. The risk of propagating the solitary genius concept (to the exclusion of other possibilities) is that organizations will fail to support “messy” teams.

• Innovation happens at the “edge of chaos”: either too much or too little structure is destructive.

• Clusters are important. It may seem risky to have many firms in one location competing for a common pool of talent, but history shows that a cross-fertilizing, dynamic environment is more innovative and sustainable.

• The Internet and related communications standards are flattening the world at an unprecedented pace; the Web empowers enormous networks of individual innovators. Standing still is not an option.

Group Genius also benefits from:

• Annotated Notes: Sawyer has made a wise choice to keep the prose simple and fast-moving, but as a result, major ideas sometimes jump off the page as bald assertions (for example, “... the most effective . . . groups are self-managing. . . . without being directed by a leader.”). The annotated notes at the end of the book provide good counterweight and credibility to the breezy style.

• Frequent Checklists: The book is sprinkled with bulleted lists of do’s and don’ts, which stitch the storytelling narrative together into practical advice.

As well as the above strengths, Group Genius has its weaknesses. The most fundamental of these are that Sawyer: 1) finds it necessary to denigrate the value of individual performance instead of simply celebrating group performance, and 2) uses “creativity” and “innovation” interchangeably throughout. Most of us, I suspect, have found it useful to dissect innovation into two or three essential elements: a frequent version is that innovation equals inspiration plus invention plus implementation.

The central thesis of the book would be more convincing if creativity and implementation had been treated separately, and if neither was indiscriminately equated with innovation. For example, Sawyer retells the story of John Reed’s solo insight on a Caribbean beach, about a world of ATMs, credit cards and networks that ultimately transformed Citibank. It is certainly true that Reed’s insight built upon preexisting pieces, and also true that implementation took a great deal of work and problem-solving by hundreds of others. But those don’t negate Reed’s unique role and value: even if you can’t plan for “lone sparks” like Reed’s, it doesn’t mean that you can’t celebrate and support them when they occur. The anecdote also illustrates that brilliant innovation can arise from more-or-less solo inspiration followed by more-or-less team implementation, a simple point entirely missed.

Sawyer also has many lengthy anecdotes about the importance of egalitarian group “flow” in jazz and improv theater, which are all well and good. It is clear that these build a case for similar constructs in business creative sessions; however, they do not decrease the case for solo contributions, nor do they obviously support a case for leaderless, egalitarian teams in subsequent implementation. I couldn’t help but recall Fred Brooks’ compelling discussions of the master-programmer-as-chief-surgeon in The Mythical Man-Month, which is basically a completely opposite model for creative problem-solving.

Finally, a small peeve: do we really need to see the nine-dots puzzle again? It would be refreshing to see an innovation book that worked a little harder to find a metaphor for “out of the box thinking.”

Group Genius certainly does make a convincing case that creative teams have particular attributes, and these can be fostered in the workplace as well as in the arts. It would have been stronger if creativity-vs-implementation were treated more explicitly, and if individual contributions were seen to complement, rather than compete with, group efforts. But again, read this book for the convincing anecdotes, the strong bibliographic notes, and the consistent best practices about innovation in the workplace today.

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The Customer Connection: The Global Innovation 1000;
Barry Jarzelski and Kevin Dehoff; Booz Allen Hamilton; Strategy + business 49, Winter 2007, 84 pp. at www.boozallen.com

Booz Allen Hamilton’s third annual study of the world’s 1,000 largest publicly-held corporate R&D spenders and the impact of innovation on corporate performance finds two primary success factors: aligning the innovation model to corporate strategy and listening to customers “every step
of the way” (see page 4, “World R&D Spending Rising,” this issue). Other key findings of this year’s study include:

- **R&D spending caught up to sales growth in 2006 for the first time in four years. For the Global Innovation 1000, R&D spending rose last year by $40 billion to $447 billion, a 10 percent increase, matching sales growth of 10 percent.**

- **North American companies increased their absolute R&D spending by $21 billion, while China and India increased spending by only $400 million—still, a 25.7 percent increase over last year.**

- **Although “money alone does not lead to effective innovation,” companies that tightly align their innovation and corporate strategies had 40 percent higher operating income growth and 100 percent higher shareholder returns over the last three years than companies whose strategies were less aligned.**

- **2006 saw a 25 percent increase in “High-Leverage Innovators”—those that outperform their peers over a five-year period while spending less on R&D as a percentage of sales than their industry medians.**

- **Top 10 global R&D spenders in 2006 were, in descending order: Toyota, Pfizer, Ford, Johnson & Johnson, DaimlerChrysler, General Motors, Microsoft, GlaxoSmithKline, Siemens, and IBM.**

- **Computing & Electronics (29 percent), Health (22 percent), and Automotive (17 percent) accounted for more than two-thirds of total R&D spending in 2006.**

Booz Allen categorizes 118 of the 1,000 companies studied as High-Leverage Innovators. Compared with others in their industries, this 11 percent “consistently outperformed their peers over the entire five-year period, while simultaneously spending less on R&D as a percentage of sales than their industry median, marking a more than 25 percent increase in the number of companies that earned recognition in this category compared to last year.”

The study found that the High-Leverage Innovators attribute much of their success to their focus on the entire innovation value chain, from generating new ideas, to product development, to marketing. All appeared to work hard to make sure their innovation strategies were closely aligned to overall corporate strategy.

**Notable Papers and Articles**

**Successful pharmaceutical discovery: Paul Janssen’s concept of drug research; Paul J. Lewi and Adam Smith; R&D Management 37, 4, 2007, pp. 355–362.**

The late Dr. Paul Janssen was the founder and director of Janssen Pharmaceuticals and “arguably the most prolific drug inventor of all time,” according to Paul Lewi of Catholic University Leuven (Belgium), and Adam Smith, of Nobel Web AB (Sweden). Based on their personal experience, they describe the factors contributing to the success of Janssen’s enterprise and a typical day in his “unique organization of research.” They describe his management style as people- rather than process-oriented, “giving maximal freedom to competent and trusted researchers while continuously probing their activities and focusing their efforts toward achievable goals.” Janssen, write Lewi and Smith, preferred to explain his management concept around four “metaphors”: 1) research as an orchestra, with Janssen the conductor; 2) Janssen’s role was like the palm of a hand, interconnecting the different scientific disciplines (the fingers) and bringing them closer together; 3) a prominent role for the open mind; 4) a parallel flow of highly active lead compounds (“our children”) so that the selection of a compound for development could be postponed to the last possible moment.” The authors explain how these metaphors worked in practice and react to the three most common objections: 1) the concept is no longer applicable; 2) it only works with small groups of researchers; 3) it requires a charismatic leader like Janssen.

**Something new under the sun: A special report on innovation; The Economist, Oct. 13, 2007; 14 pp. following p. 58.**

This report surveys the global innovation landscape to discuss: 1) how globalization and information technology are spurring faster innovation; 2) how companies like Nokia, GE and Procter & Gamble are developing products in China and India for world markets; 3) how innovation is evolving from a management art to a management science; 4) how open innovation is beginning to transform entire industries; 5) how enthusiasm for government-backed “innovation clusters” is fading; and 6) how “we are all innovators now.” This last section carries a warning from Stanford Research Institute head Curtis Carlson that India and China are a “tsunami about to overwhelm” the United States unless we “learn the tools of innovation and forge entirely new, knowledge-based industries in energy technology, biotechnology and other science-based sectors.”

**It’s All About Me: Narcissistic CEOs and Their Effects on Company Strategy and Performance; Arijit Chatterjee and Donald C. Hambrick, Administrative Science Quarterly 52, 3, 2007, pp. 351–386.**

Drawing upon research indicating that narcissism is a dimension of personality rather than just a mental disorder, Penn State professors Chatterjee and Hambrick sought to determine how narcissism influences a CEO’s strategic choices and the organization’s performance. From an empirical study of 111 CEOs in the computer software and hardware industries, they found evidence that CEO narcissism (measured in the early years of CEO tenure) is significantly positively related to several company outcomes (in the later years of CEO tenure), including strategic dynamism, number and size of acquisitions made, extreme performance, and volatile performance. Narcissistic CEOs were found to engage in substantial strategic change and considerable acquisition behavior. In their tendency to pursue “dynamic and grandiose strategies,” they also tend “to generate more extreme performance—more big wins and big losses—than their less narcissistic counterparts (as measured both by accounting and shareholder returns). The evidence of volatile performance was less complete, but there was a strong indication that CEO narcissism was associated with large annual fluctuations in accounting returns (ROA).”
This book brings clarity to the confusion and offers a practical and detailed roadmap for planning and implementing an externally-focused innovation strategy. Features: A detailed and practical roadmap to figuring out how to apply the power of network-centric innovation to business. Companies can innovate faster, cheaper, and better by taking advantage of internal and external networks of individuals, communities, and partners. Introduces several unique innovation roles for firms to play in network-centric innovation. The Global Brain book. Read 4 reviews from the world's largest community for readers. This is the eBook version of the printed book. All the talk about ... The Global Brain: Your Roadmap for Innovating Faster and Smarter in a Networked World. ISBN. 013233951X (ISBN13: 9780132339513). Satish Nambisan and Mohanbir Sawhney present a framework for thinking about and using network-centric innovation (NCI) in your firm. Although they intend their b The idea of the Global Brain is not brand-new. However, as India’s and China’s economies continue to expand, and as their workforces technical expertise booms, this concept is becoming increasingly important in the business world. Satish Nambisan, of Rensselaer Polytechnic Institute, and Mohanbir Sawhney, of Northwestern University, draw on their years of experience in academia and industry, as well as recent interviews with senior innovation managers at large companies, to provide a framework for designing and managing innovation networks. Its fundamental principles include: shared goals and objectives, a shared “world view,” cumulative knowledge creation in groups, and architecture of participation.