



## *Review*

### ***Where Good Ideas Come From: The Natural History of Innovation***

Steven Johnson. *New York: Riverhead Books, 2010. 326 pp. ISBN: 978-1-59448-771-2. \$26.95.*

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Written by Steven Johnson, this book about innovation is certainly entertaining and enlightening. Aside from an overuse of the phrase “primordial soup,” there is a lot of information to be taken from Johnson’s outline of how ideas form and build on one another.

Much of the book focuses on how inventors take what they experience in the world around them, play with it over a number of years, and connect it to other objects or ideas to generate new creations and concepts. The voyages and theories of Charles Darwin are featured heavily, illustrating the conditions and circumstances that Johnson states are optimal for the advancement of knowledge.

The first of these conditions is that which Johnson calls the “adjacent possible.” It states that there are an infinite number of new possibilities that can result from a single idea or innovation. However, these possibilities do not have an equal likelihood of happening. Circumstances may be right for one of these possibilities to occur, but not another. Or, intermediate ideas or innovations may need to be developed to fully realize the potential of an adjacent possible. A may have D as an adjacent possible, but it isn’t useful or appropriate until the other adjacent possibles of B and C occur.

The situation of liquid networks also enables innovation. Johnson uses the three states of matter to describe the type of networks that exist and that allow for the generation of new ideas. Gas networks, like atoms in a gaseous state, are chaotic. Participants collide and exchange ideas, but these collisions are too brief to create anything substantial. Solid networks are the opposite; they are too stable. The participants don't move enough to meet and exchange ideas, and the order is too rigid to allow changes. Liquid networks are just right. The middle ground allows enough chaos to facilitate the flow of information and new ideas, while it has enough stability and order for those new ideas to grow and create change.

Slow hunches are the third part of innovation. The lightning strikes or light bulb moments so often depicted in the media are rather rare. Many times, ideas need time to boil, or they need time to connect with smaller ideas and become bigger ideas. This is similar to both previous conditions; adjacent possibles need time to develop and make connections that create the right circumstances, and there needs to be enough chaos of a liquid network to allow those connections to be made. An example given by Johnson was that of Google, which has an environment that supports slow hunches. Google's workplace has Innovation Time, which is 20% of the work week where employees can play with new ideas, bounce them off one another, and generally let them percolate into something more.

Sometimes, these slow hunches are aided by randomness, or serendipity, as Johnson calls the fourth condition for innovation. Connections are made and new ideas are created often because two seemingly unrelated events, people, or ideas randomly clash. Browsing is a form of serendipity; one does not know what he or she is looking for but will know when it is found. The World Wide Web has enabled this kind of happenstance discovery through links. A curious person looks up something they don't know much about and clicks more links to see more things that they don't know much about. In no time at all one can go from researching complex mathematical theories to reading about Betty White, and this is actually a good thing. Random connections can fill in pieces of a slow hunch puzzle or make different adjacent possibles more likely. Traditional brainstorming sessions are often not as effective as serendipity, simply because thinkers are focusing too much on the task at hand. The focus, or "phase-lock," eliminates distractions but also eliminates the possibility of serendipitous discovery.

In a similar way, error can also light the way to creativity. Being wrong forces one outside the comfort zone and into the exploration of new territory. These new territories may hold connections to slow hunches, show adjacent possibles that were previously overlooked, or spark serendipitous associations. Errors also force the examination and testing of assumed "truths." Ideas that were thought to be true may eventually prove to be false, and this proof removes the barriers that the "truth" erected around alternate possibilities, enabling them to be explored to fullest extent.

Exaptation is the sixth circumstance of innovation. The concept is loosely defined as the use of a fully developed technology from another field for an entirely new, unrelated purpose. MacGyver, when he repurposes everyday materials to save the world, is the

flesh and blood embodiment of the concept of exaptation. Wide networks of weak ties allow ideas to spread, and the further they spread the more likely they are to be recycled into something completely different. Exaptation is assisted by different groups or types of people working across departmental boundaries. This ensures that other groups are exposed to new ideas that they can re-use for their own purposes.

Related to exaptation is the final concept of innovation: platforms. All of the previous conditions are excellent facilitators of innovation, but platforms are the foundation of innovation. Platforms are the good ideas upon which new and better ideas are built. Re-inventing the wheel is not necessary; it is only necessary to improve the wheel or add to it to make it suit new and different needs. There are, however, some obstacles to the creation of platforms. Though open platforms have been created in different areas, such as open-source software and open access publishing, they have yet to dominate their respective industries. Especially in the age where there is profit to be made from new inventions and ideas, barriers such as the patent system are constructed to protect ideas from being shared. Research and development labs are restricted from the public, and occasionally even from other members of an organization. Environments can be built specifically to prevent the processes outlined by Johnson from occurring, in efforts to protect market value.

The concluding chapter shows that as the world moves forward, more and more innovations are coming from non-market, networked sectors. The world is moving towards liquid networks where adjacent possibilities and errors are explored, slow hunches and serendipity are connected, platforms are published and exaptations are developed. However, Johnson acknowledges that there is more than one way to generate creativity and innovation. His model is certainly very good and is growing in use, but other models, such as the traditional R&D lab model, are by no means unsuccessful.

While Johnson's book is a very interesting read in terms of the history and psychology of innovation, it is not in and of itself particularly innovative. With the rise of the open floor plan, the information commons, and "crowdsourcing," it is clear that much of the world has already caught on to the benefits of sharing and the free flow of information. Prospective employees are screened for their ability to collaborate and network. The Internet has and will continue to play a vital role in encouraging all of the conditions of innovation that Johnson spoke of. The Information Age is here; Johnson simply explained and put names to the circumstances that we've been experiencing for years.

Additionally, the circumstances that we've been experiencing are largely a part of wider cultural change. When describing liquid networks, Johnson likened gas networks to a world populated by hunter-gatherer nomads, and solid networks to the patchwork of fiefdoms and castles of the Middle Ages. As our world has changed, many of the principles that facilitate innovation fell into place. The liquid networks we have today are encouraged by a culture that values fair use and information access, underpinned by instant communications, easy travel, and virtual meeting spaces. When addressing how to implement the seven principles in the library environment, a scaled-down examination of the culture at the library must be undertaken; if the culture at the library has

enshrined a fear of failure, or does not encourage librarians to chat and go to each other for help, the principles of error or serendipity will not apply. Culture change has to happen first before librarians can make use of these principles. It is exceptionally difficult to achieve, and Johnson offers no advice whatsoever on how to achieve it.

Even for libraries with collaborative organizational cultures, the book has little in the way of prescriptions for making those libraries more innovative. Johnson explains *how* the optimal principles work and *why* they work to encourage innovation but says nothing of how libraries can implement them. Essentially, this book is a good addition to any history, psychology, or sociology collection as it explains innovation and its history exceptionally well. But librarians of any stripe looking to this book for fresh ideas or approaches to making their libraries more inventive will not be able to use it as a platform to generate their own innovations. Perhaps they could consider its purchase an error that leads them to explore books with more useful ideas that they can in turn exapt to their own libraries.

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