

## Where Good Ideas Come From

By Steven Johnson

What environments lead to unusual levels of innovation? In his book, *Where Good Ideas Come From*, Steven Johnson looked at shared patterns of innovations that we may take and apply to our own lives. Examples of innovations discussed include coral reefs, Darwin's theory of evolution, coffee houses, the Internet, cities, rainforests, etc. A new idea, as Johnson put it, is not a single thing, but rather a network of neurons firing in sync inside your brain; a new configuration that hasn't formed before. So the question remains: How do you get your brain into environments where these new networks are more likely to occur? Johnson takes the reader through his seven theories which have been shown to support new discoveries:

- I. **The Adjacent Possible:** Good ideas are “constrained by the parts and skills that surrounded them”. What the Adjacent Possible theory invites is that two ideas, atoms, entities, anything (represented as A + B), may come together and create something completely new out of the two. This new product (which we will call C) can now be a 3<sup>rd</sup> player in the innovation sphere, re-combining with either A or B to create a fourth idea. The Adjacent Possible relies on a “whole series of subsequent innovations”, each one a building block along-side its predecessor.
- II. **Liquid Networks:** The Liquid Network is the necessary medium for which new ideas are most efficiently conducted and make new connections. As Johnson states, good ideas first need “[1] a capacity to make new connections with as many other elements as possible ... and [2] a 'randomizing' environment that encourages collisions between all the elements in the system.” The first, exploiting the adjacent possible, and the second, being the medium for which the adjacent possible may be conducted. A liquid medium (the coffee house example) is stable enough to support the elements that flow through it while also providing stability for the collisions to latch on long enough to bring rise to a new idea. Solid networks (cubicle offices) are too rigid, allow for no creativity, and limit the amount of different elemental collisions. A gaseous network (a night club) may have too much going on to focus in on any one thing. Connections may come and go just as quickly as they were formed.
- III. **The Slow Hunch:** The Slow Hunch is essentially “a hunch that [is] needed to collide with another hunch” to breed relevance. For example if one were to read all of Darwin's journals from the time before he constructed his theory of evolution, you would see that he had his theory all along before he was able to fully form it in his mind. It wasn't until after his Malthus reading on population that the two ideas (his previous research and that of Malthus) came together for him. Often two half-baked ideas form one whole. The Slow Hunch is much similar to the Adjacent Possible theory but differ in that the hunch is nothing more than a hunch, until the other comes along.
- IV. **Serendipity:** Serendipity is the process of ideas surfacing while one is sleeping or in a dream-like state. This theory, like the other seven, is heavily supported by science and studies done on the brain during sleep cycles. During what Johnson calls “chaotic mode” of the neural synapses, for a period of about 55 milliseconds, our neural synapses and ideas in between them scatter, make random connections until the “phase-lock” mode kicks in and everything can be supported by that “liquid network” once again. In the case of discoveries, every entity in our mind is a hunch. The chaos mode of our sleep cycle enables these hunches to scatter, make random connection that may have potential, disengage, and repeat.
- V. **Error:** Error is grounded in the idea that being wrong forces you to explore. When conducting any sort of experiment which ultimately fails, the natural assumption is to scrap the data and figure out where you went wrong. However, as Johnson put it, “paradigm shifts begin with anomalies in the data”. When an experiment doesn't work out, either, yes, you did something wrong, or a brand new theory has just been discovered, but has yet to be realized. By analyzing what we believe to be “mistakes”, one may discover that it was never actually a mistake, but a new theory or fact, presenting itself.
- VI. **Exaptation:** Like so many other theories of Johnson's that have roots in the Adjacent Possible, Exaptation involves taking a current invention and appropriating it toward something else. In the theory of evolution, a feather adopted by a bird for warmth, through the process of time, gets hijacked and exapted for flight. In a sense, Error has been built into our DNA resulting in mutations that allow for Exaptation.

VII. **Platforms:** The Platform theory arose out of Darwin's theory of atoll formation. Darwin noticed how as the volcanoes receded into the ocean, coral reefs, constructed from Scleractinia polyps, emerged and life would flourish. He justifies the coral polyps as being “ecosystem engineers”; a species that makes the habitat which supports life for everything within its' newly built ecosystem. The term “Platform” refers to the platform builders (coral polyps, beavers, etc.) which open up the door of the adjacent possible. For example, without coral reefs, the vast, warm ocean ecosystems would have nothing to thrive on, or rather would have never been formed at all. Platforms create something out of nothing; acting as the foundation from which new innovation may arise.

### **The 4<sup>th</sup> Quadrant**

In the conclusion of his book, Johnson offers up a new, 'economic lens', of which to view innovations. Johnson zooms out to group the good ideas that resulted from any of the seven situations discussed, into 4 Quadrants. They are split between the Non-Market (State-run hierarchy; top-down approach, where consolidated decision making power will decide whether your new idea would be approved or not), and the Market (freely “allows innovation to flourish at the edges of the network”) approach. The quadrants are then broken down into Market/Individual (private corporation or solo entrepreneur), Market/Network (marketplace where multiple firms interact), Non-Market/Individual (amateur scientist who shares ideas freely), and Non-Market/Network (open source or academic environments in an open source). What this does, in grouping various examples that support some of the previous seven theories into one or more of these four quadrants, is help us better understand and answer the question, on a more broad scale, of what kind of environments make innovation possible in the first place. Any situation will differ from the next in detail, but by grouping ideas together by economic condition helps us disregard the minute details and focus on the major driving force that helps fuel discoveries.

Liquid networks, slow hunches, serendipity, exaptation, and platforms all thrive on open collaborative environments, or the Non-Market/Network model of the 4<sup>th</sup> Quadrant. Ultimately, the universal criteria for an environment to breed new ideas is communication and willingness to share ideas.