The Technology Hype Cycle

by Arthur T. Johnson

It has been said that the Stone Age did not end because ancient humans ran out of stones. No, the key was that new technologies allowed them to advance to something better: first copper, next bronze, and then steel.

There is a description of biological evolution called "punctuated equilibrium" that explains the slow incremental changes in life forms that occur over a long period time, but, every now and again, there are abrupt changes that shake up the biological world. Technologies, too, seem to have their own punctuated equilibria. Technological evolution produces small improvements over time until some paradigm shift changes the whole ball game, and the slow improvement cycle starts over again.

Technological evolution produces small improvements over time until some paradigm shift changes the whole ball game.

Digital Object Identifier 10.1109/MPUL.2014.2386491
Date of publication: 13 March 2015

We have seen many of these new technologies with unlimited promise: biotechnology, genetic engineering, personalized medicine, cancer vaccines, and the list goes on. Each of these was purported to solve all or many of the ills of humankind—except, of course, that they didn't.

It's not that they were devoid of contributions to human welfare, but it is true that their initial promise exceeded their true worth. Over the course of a lifetime, enough of these new technologies come along that a pattern emerges, and this pattern can be called the "hype cycle" of new technology. There are five distinct stages:

- Stage 1: *Promising new technology*. The new technology generates excitement and much talk about its promise to solve a multitude of problems. All the talk is about its immense potential.
- Stage 2: *The peak of inflated expectations*. Unrealistic expectations are generated, and the promise of the new technology seems unlimited. Funding increases dramatically, and competition for that funding is intense.
- Stage 3: *The trough of disillusionment*. The technology fails to meet the high expectations, either because it takes longer than anticipated to develop or because unforeseen problems limit its potential. Development continues but at a calmer pace. People begin to question the worth of the new technology.
- Stage 4: *The slope of enlightenment*. The hype has subsided, but some actual benefits of the new technology are realized. The development of the technology grinds on at a slow but steady pace.
- Stage 5: *The plateau of productivity*. The practical benefits of the new technology have become accepted as normal, and the technology finds its niche among other technologies. It is neither a panacea nor a worthless dud but is useful for certain applications.

So it is right to be somewhat skeptical the next time a new idea promises to be a universal cure-all for the ills of the world. It is only after a lot of work and a good amount of time that some of the promise will be kept and the technology can be found useful. In the meantime, we shouldn't throw away all of our stones.